APRIL 2011

Steering Capital

OPTIMIZING FINANCIAL SUPPORT FOR INNOVATION IN PUBLIC EDUCATION

Kim Smith and Julie Petersen

innovation
FOR THE PUBLIC GOOD
A Case Study of US Education

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First in the series from innovation FOR THE PUBLIC GOOD

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ABOUT THIS PROJECT

It is widely acknowledged that innovation will be necessary to dramatically improve public services in America. But innovation in the public sector doesn't happen in a vacuum; innovation happens at the nexus of policy, research, capital, and practice. This project looks at one case study – education – by analyzing some of the key aspects of an emerging ecosystem for innovation in public education in the US, including the flow of investment capital for such efforts, the uptake of innovations by buyers and users, federal efforts to stimulate and scale innovation, and ways that technology could facilitate innovation investment and practice. Drawing on surveys, interviews, and working groups, the project highlights recent efforts to fuel and steer more innovation, and frames the remaining challenges that lie ahead for the public, private, and philanthropic sectors. This project culminates in an analysis of the lessons and insights drawn from the recent experience of US public education in comparison to the way leaders are using innovation to address similar intractable social problems in other fields and in other countries.

For more on this project and its publications, visit http://www.bellwethereducation.org/innovation-for-the-public-good/.

ABOUT BELLWETHER EDUCATION PARTNERS

Bellwether Education Partners is a national nonprofit organization dedicated to accelerating the achievement of low-income students by cultivating, advising and placing a robust community of innovative, effective and sustainable change agents in public education reform and improving the public and policy climate for their work.

ABOUT THE AUTHORS

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Julie Petersen is a freelance writer and editor. As communications director at NewSchools Venture Fund, she led the firm's marketing and publishing efforts for eight years, including articles in *Education Next*, *Urban Education Journal* and several Harvard Education Press volumes. She also spent several years covering technology venture capital and entrepreneurs for *Red Herring* magazine.

INTRODUCTION:
ALIGNING CAPITAL TOWARD EFFECTIVE INNOVATION IN EDUCATION

If you're reading this, you probably don't need to be convinced that public education is broken. You don't need to be reminded that American students rank dismally against other developed countries on measures like the PISA exam, despite spending more per student than any country save Luxembourg. [1] Nor do you need to be reminded of the massive achievement gap that underpins that dismal outcome, with low-income students and students of color falling far behind their peers on measures of achievement (reading proficiency, writing ability) as well as attainment (high school graduation, college degrees).

And given recent media attention to the matter, you may not need to be reminded that this has happened against an important backdrop: global economic pressure and internal equity and fairness goals have for decades pushed us to continue to ratchet up the demands we are placing on our public schools. Where we once built public schools to educate a small number of citizens to a high level – and get the rest culturally assimilated – we've since layered onto those schools requirements like equitable access and funding, concrete academic standards, and assessment and accountability mechanisms that demonstrate that students are making real progress against those standards.

And you probably know that over the past few years, in order to provide the skills and tools our young people need to earn a livable family wage and to succeed in modern life,

we've topped off our demands with what is in many ways the ultimate K-12 educational expectation: that our schools prepare all children to earn a college degree. These demands are not frivolous nor unrealistic; they are informed by the real needs of our economy and our society. But expecting a system to deliver at both a higher level and a larger scale – and with the same dollars, or increasingly even fewer – is the classic definition of a productivity crisis.

Though we are at a moment in which diverse leaders and institutions across the country – from the private sector (business), public sector (government), nonprofit sector and our communities – agree on the magnitude of the problems we face in public education, there is not yet real consensus on the solution. However, there is increasing consensus that the solution will require significant innovation at scale – which, simply put, is a new approach that achieves a better result that can be accomplished at scale. Unfortunately, our educational ecosystem is not currently set up to support the kind of innovation we will need.

This embrace of innovation as a means to improve productivity has long been accepted in fields like medicine and communications, where major advances in the way we do things bring great benefits to individuals, the economy and our society. According to Thomas Kalil, deputy director for policy at the White House Office of Science and Technology Policy, our average standard of living will double every 23 years if our productivity growth rate is 3 percent, but only every 70 years if it is 1 percent.[2] "The increases in standards of living that we achieved in the last century were possible only because of the discoveries and innovation that let new physical capital and new human capital be put to work in high-return activities," agrees noted Stanford economist and entrepreneur Paul Romer.[3]

While innovation often connotes shiny, brand-new and wildly different, all it really means is new ways of doing things that bring about an improved result.

While innovation often connotes shiny, brand-new and wildly different, all it really means is new ways of doing things that bring about an improved result. Sometimes those innovations look quite familiar and other times they feel entirely new and unique. As innovation writer and professor Clay Christensen describes, some innovations are "disruptive," breaking with current practice to serve a new customer base or to serve an existing population in radically different ways, while others are considered "sustaining," making improvements within the existing architecture of the current system. Education needs both of these sorts of innovations, as well as innovations that span not only ideas, products and processes, but also platforms – shared conceptual architectures that include a set of definitions, standards and protocols that allow for the creation and connection of modular components.

Romer has also observed, "The most important job for economic policy is to create an institutional environment that supports technological change." Here, he is referring to "technology" in its original sense of the word – the practical application of knowledge, not necessarily in a way that is electrical or computerized (although we believe this type of technology holds significant promise for improving productivity in education). These two observations from Paul Romer tee up an important set of concepts for consideration during the strategic inflection point we are facing in education: first, that *major productivity improvements require technology change and innovation*; and second, *that economic policy and the institutional context it creates matter a great deal to innovation*. In other words, when considering our educational goals, innovation will be critical to driving the improved productivity we need, and the policies and frameworks that define the flow of capital and the investment context can either encourage or inhibit this innovation.

In an earlier paper, we considered in depth the factors that have historically inhibited the nonprofit and for-profit capital markets from effectively supporting education entrepreneurs and the important role they can (and should) play in driving a continuous learning and innovation cycle.[4] In that paper, we introduced the broad landscape of relevant players to this issue, including not only education entrepreneurs themselves – a specific type of innovator who builds a new organization committed to improving schooling or learning – but also the foundations and for-profit investors who support those entrepreneurs, the educational "buyers" and users who purchase or consume their products and services, and policymakers. We also explained the key barriers that have inhibited the capital markets from fostering innovation in education, including:

» An irrational, idiosyncratic philanthropic capital market with few incentives for rewarding improved outcomes (including little funding for the scale-up of successful organizations), instead favoring small doses of funding across many organizations, which locks nonprofit leaders into a constant fundraising cycle that distracts from the real work of innovation and institutional learning;

» Significant barriers to tapping private sector innovation, including policies that restrict the work of for-profit providers in education, ideological and frequent policy shifts that increase investment risk by creating undue market volatility, massive fragmentation (to the tune of 14,000 districts, 95,000 schools and 50 different state standards), market domination by a few large publishers that feel little pressure from competition or from their customers to really innovate, and a slow, relationship-based sales cycle that rarely measures or rewards quality;

» A policy and regulatory infrastructure that favors compliance and hinders the uptake of effective innovations, rarely allowing state or district buyers to choose flexibly between a

range of high-quality product or service options, inhibiting the flow of information that would allow buyers to anticipate or measure performance improvements, and offering few meaningful incentives for these buyers to adopt better products and services;

» A lack of consistent investment in technology infrastructure, maintenance, upgrades and training.

This paper will revisit the central question of how to improve the provision of capital for entrepreneurial change in public education, but will emphasize the innovation ecosystem that surrounds the capital markets. We will consider capital as one of the most important levers we need to align in this innovation ecosystem, but as a force that can both influence the way innovation takes hold – and can in turn be influenced by others in the wider ecosystem, including public policy.

In the course of this paper, we will briefly define what we mean by innovation and the cycle of constant learning it requires, and lay out three contributing trends relevant to this context: social entrepreneurs, social purpose investors and social purpose market steering. We will then consider the five elements we believe are necessary to enable effective capital market dynamics to support innovation, including:

1. Clarity and agreement on the problems, goals and metrics for success
2. An effective research and development (R&D) system
3. A culture that is evidence-based, with incentives and infrastructure aligned for continuous improvement
4. Data that are transparent, available, comparable and useful
5. Robust, diverse and aligned investment capital

We will conclude by offering some recommendations about how we might work together across the sectors to mobilize public, private and philanthropic capital in ways that harness the ingenuity and energy of entrepreneurial change agents in service of our ambitious public education goals.

Defining Innovation

The most crucial element of innovation is not just the spark of “new” or even the “better” of the initial result, but the way in which we create a continuous learning and improvement cycle that allows ideas to feed off each other and multiply. This cycle of learning and

repeated application of ingenuity as new problems emerge is crucial to inciting and advancing innovation, and is the engine of what we think of as human progress.

In his recent book, *Where Good Ideas Come From: The Natural History of Innovation*, author Steven Johnson contends that environments that foster innovation are those that support the open connection and reconnection of people and ideas. "When one looks at innovation in nature and in culture, environments that build walls around good ideas tend to be less innovative in the long run than more open-ended environments," he writes. "Good ideas may not want to be free, but they do want to connect, fuse, recombine. They want to reinvent themselves by crossing conceptual borders."[5] "The myth of the lone genius having a 'eureka' moment that changes the world is indeed a myth," agrees *Wired* magazine editor Chris Anderson. "Most innovation is the result of long hours, building on the input of others. Ideas spawn from earlier ideas, bouncing from person to person and being reshaped as they go."[6]

"The myth of the lone genius having a 'eureka' moment that changes the world is indeed a myth. Most innovation is the result of long hours, building on the input of others. Ideas spawn from earlier ideas, bouncing from person to person and being reshaped as they go."
–Chris Anderson, *Wired* magazine

For innovation to take hold in education, we need to make some significant changes to the way the education ecosystem's wide array of stakeholders do their work, orienting them toward common goals and providing incentives for all of them to strive more effectively and collaboratively for approaches that create better outcomes for children and communities. These stakeholders include: policymakers who set goals and conditions; practitioners and users who should be helping to define what kinds of solutions are needed and what will work; researchers who help test and refine ideas and assess effectiveness; state and district officials who currently make key buying and procurement rules and decisions; entrepreneurs who translate innovative new approaches into sustainable and scalable organizations; investors and philanthropists who give people and organizations the runway they need to pursue innovative activity; and families, students, communities, colleges and employers who all benefit from better products and services.

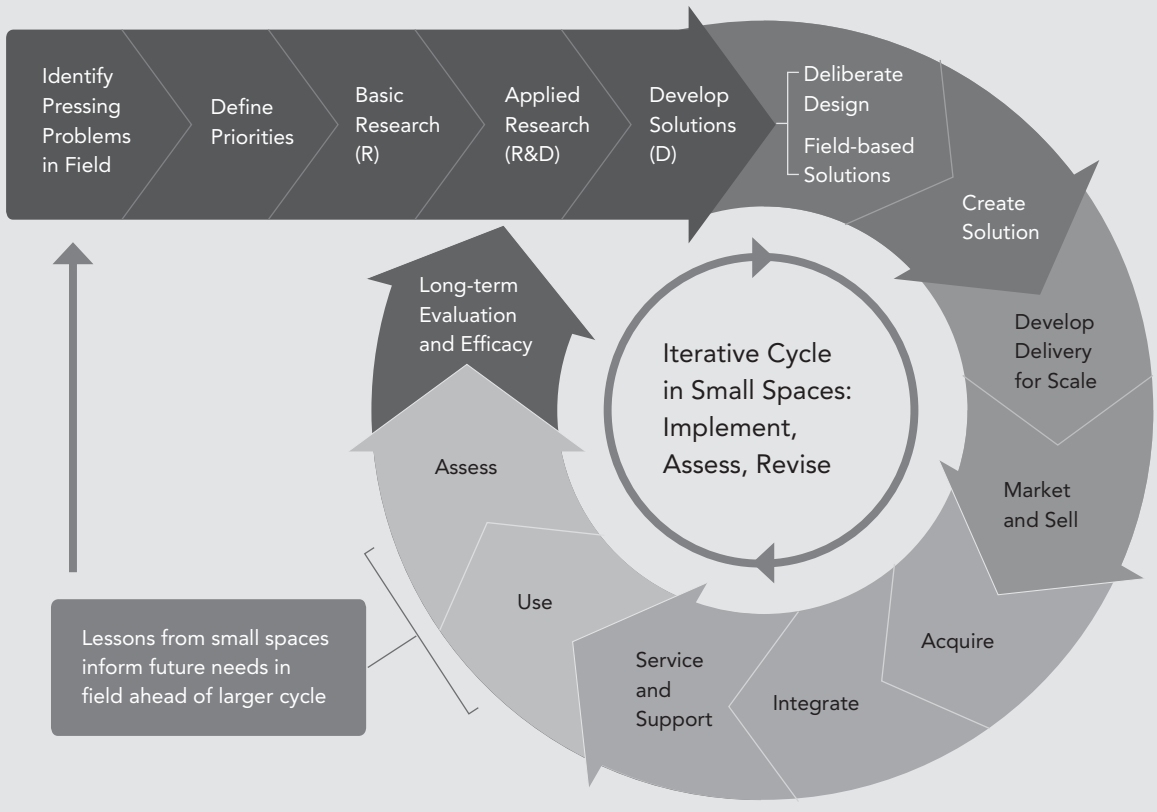
The components of an innovation cycle are akin to those of any high-performing system or organization (see Figure 1). It begins with a clear sense of the most important problems to be solved, along with an understanding of the barriers that stand in the way of accomplishing these goals. In the words of John Dewey, "We only think when we are confronted with a problem." Such clarity on problems of practice is a critical precursor to the identification

of solutions to those problems. Then, for a robust problem-solving or innovation cycle, priorities need to be set and significant long-term research and development (R&D) must take place, including both basic research and intentional activity to develop research findings into products, services and approaches.

More specifically, the research (R) part of this R&D engine needs to effectively identify and conduct a significant amount of broad, basic research that is aligned with the biggest future needs in the field, and then winnow through the research findings to identify ideas and innovations that merit early-stage development (D). Such development then requires a faster

FIGURE 1

The Cycle of Innovation



Source: Bellwether Education Partners analysis

learning cycle that iterates within the broad cycle, which includes some "small spaces" for experimentation, often in the form of entrepreneurial organizations and programs that can get beyond old rules and norms in order to develop, assess and refine products and services – which in turn requires a range of forms of capital (including money, of course, but also human capital and intellectual capital). These entrepreneurial efforts act as labs of a sort whose practices can then inform future needs assessment for others in the field. Some of these efforts then lead to wider adoption among other providers, such as states or districts, but only if there are incentives for improvement and rewards for better performance. When there are incentives to improve, and thus to adopt better solutions, tools and approaches, those entrepreneurs or organizations offering the best innovations – those that truly make improvements in practice and in results – are rewarded for their success, which in turn rewards their investors and creates a "virtuous cycle" of improvement that aligns capital with the greatest needs at any given time, and creates an effective ongoing learning cycle for continued adjustments as needs evolve. When this cycle is in service of a public good, it is either supported or made more difficult by the regulatory and funding systems that intersect and affect it at every turn.

Education is far from the only social sector grappling with increasingly complex problems and the need for increased innovation. In the last several decades, many have acknowledged that the complexity of the problems we seek to solve in the 21st century – ranging from cleaner energy, to agriculture that meets higher productivity without damaging health or environment, to health care that is more efficient and more effective at preventing illness, to poverty alleviation – far outstrips the capabilities of existing frameworks and institutions. Thus, problem solvers have sought new ways for the public, private and nonprofit sectors to work together, allowing a greater degree of intellectual, financial and human capital to be tapped in service of these societal goals. This has led to three important and related trends that together form a backdrop for social change that we will then apply to education innovation: (1) the rise of social entrepreneurs; (2) a corresponding increase in social purpose investing; and (3) intentional market-shaping activities on behalf of the public sector to harness private and other capital in support of social good.

Contributing Trend #1: Social Entrepreneurship

Over the past two decades, we have seen the rise of the "social entrepreneurship" movement. This approach to social impact takes a page from the classic definition of an entrepreneur – one who "shifts economic resources out of an area of lower and into an area of higher productivity and greater yield," in the words of French economist Jean-Baptiste Say, who

coined the term *entrepreneur* – but applies that energy toward solving social needs. "My own feeling is that 'social entrepreneur' conveys the idea of somebody who is highly energized and determined to achieve impact; who perceives opportunities; who pursues them in an innovative and resourceful way; who is not bound or stuck by sector boundaries but willing to use whatever tools are likely to get the job done, including business tools," notes social entrepreneurship scholar J. Gregory Dees. Like other forms of entrepreneurship, Dees adds, social entrepreneurship "is not just a one-time burst of creativity" but rather "a continuous process of exploring, learning, and improving" – mirroring and indeed modeling the very dynamics of the education ecosystem we need.[7]

The social entrepreneurship market has grown in the last decade, as can be seen in the increased number of fellowships, graduate-level programs and networking opportunities for social entrepreneurs. Beginning in 1981 with just one cohort in India, the Ashoka Fellows program has grown to an association of more than 2,000 fellows in over 60 countries.[8] The Echoing Green Fellowship, started in 1987, has invested nearly $30 million in seed grants to about 500 social entrepreneurs, allowing fellows to advance social change in 42 countries.[9] According to the Aspen Institute's "Beyond Grey Pinstripes" report, the 114 participating M.B.A. schools in the survey collectively offer more than 130 courses that cover social entrepreneurship,[10] with many such schools establishing centers that go even deeper, such as Columbia's Research Initiative on Social Entrepreneurship, Stanford's Center for Social Innovation (and its magazine the *Stanford Social Innovation Review*), Yale's Program on Social Enterprise and Duke's Center for the Advancement of Social Entrepreneurship. In addition to fellowships and graduate programs, networking opportunities for social entrepreneurs are rapidly expanding, such as Net Impact, an international nonprofit organization that connects nearly 260 chapters and 20,000 members worldwide.[11]

Social entrepreneurs and their movement of supporters and champions welcome ideas, skills and resources from across the public, private and nonprofit sectors – sampling from each in order to find the right recipe for better outcomes.

The field of social entrepreneurship occupies a unique place at the center of the political spectrum, more motivated by improved social outcomes than any Milton Friedman-inspired free-marketer, but also much more willing (in the service of social outcomes) to embrace private sector approaches and to eschew romantic notions of an omniscient public sector than any traditional progressive would prefer. This is embodied in the notion of *collective impact*, which calls for deep collaboration by a group of cross-sector actors in support of a common agenda for solving a specific social

problem. "Unlike most collaborations, collective impact initiatives involve a centralized infrastructure, a dedicated staff, and a structured process that leads to a common agenda, shared measurement, continuous communication, and mutually reinforcing activities among all participants," explain John Kania and Mark Kramer of FSG Social Impact Advisors.[12] One specific example is the new White House Council for Community Solutions, which is engaging leaders from across various areas of the social sector – including two education entrepreneurs, Laurene Powell Jobs of College Track and Kristin Richmond of Revolution Foods – to address community-based problems and engage citizens in the solutions.

Social entrepreneurs and their movement of supporters and champions welcome ideas, skills and resources from across the public, private and nonprofit sectors – sampling from each in order to find the right recipe for better outcomes. This openness to contributions from all sectors will become important later in this paper when we consider the best way to align capital in support of education innovation.

Contributing Trend #2: Social Purpose Capital and Investing

Meanwhile, over the last half century, there has been a dramatic increase in the number of investors (individuals and firms) interested in supporting positive social impacts through their investments. Early efforts focused on "negative screens" initially aimed mostly at avoiding harmful health or environmental results like smoking or pollution, rather than identifying positive contributions. Examples of early negative screens include Quakers avoiding "sin stocks" like tobacco, firearms and alcohol; later examples include Calvert Mutual Funds and TIAA-CREF, which have both at various points applied negative screens based on anti-apartheid investment (committing to exclude stocks of companies doing business in South Africa) and various environmental screens. Later efforts evolved into "double bottom line" investments where investors who valued a certain social impact chose to track both financial and social returns and were willing to trade off some financial return in order to achieve this kind of social impact. These efforts led to opportunities for businesses that created what was referred to as "pro-social" value, such as developing housing or grocery stores for the poor – areas in which a legitimate for-profit business could be sustained, but would typically not generate for an investor the same level of financial returns as those that did not prioritize a low-income clientele. Early double bottom line investors were often religiously motivated (Catholics and Quakers) or foundations supporting community economic development goals (Ford and MacArthur were leaders here), as well as individual investors supporting early micro-finance efforts like Grameen Bank.

The number and kinds of investors interested in using some part of their wealth to invest in socially beneficial purposes has been increasing steadily over the past two decades. "Sustainable and socially responsible investing (SRI) in the United States has continued to grow at a faster pace than the broader universe of conventional investment assets under professional management," notes the Social Investment Forum Foundation's 2010 *Report on Socially Responsible Investing Trends in the United States*, with assets managed under SRI strategies rising more than 380 percent over the last five years, compared with a 260 percent increase in assets managed under any professional management.[13]

"Government funding, international aid and philanthropic donations alone are insufficient to achieve the world's development aspirations. Private investment capital, therefore, will need to complement traditional resources to solve problems on a larger scale." –Judith Rodin, The Rockefeller Foundation

The potential sources of capital available for social innovation range from investors motivated entirely by financial return, such as banks and venture capitalists, to donors motivated entirely by social impact, such as traditional foundations. On the financial end, traditional investment firms have made equity investments in social entrepreneurial organizations that are just getting off the ground, or lent capital to those that are growing, such as Kleiner Perkins Caufield & Byers' $500 million clean energy Green Growth Fund. Other traditional institutional investors are motivated by federal Community Reinvestment Act requirements that mandate that financial institutions provide a certain level of investment in low- and middle-income communities where they operate businesses, such as Bank of America's loans for urban charter school facilities. Other venture capital firms have a strategic social agenda, such as Pacific Community Ventures, a development venture capital fund located in northern California that seeks financial returns but invests in businesses that employ low-income workers, or Ascend Ventures, which invests in early-stage technology companies but with a goal to support minority- and women-owned ventures.

Meanwhile, on the philanthropic front, there is a great deal of interest in pushing past the traditional conception of social change as only achievable by nonprofits or public agencies. "Government funding, international aid and philanthropic donations alone are insufficient to achieve the world's development aspirations," emphasized Rockefeller Foundation President Judith Rodin recently. "Private investment capital, therefore, will need to complement traditional resources to solve problems on a larger scale."[14] In addition to making available much larger pools of funds, finding ways for private capital to support social purpose organizations might also help reduce the cost of raising money: nonprofits spend $10 to $24

for every $100 they raise, compared with just $2 to $4 spent by for-profit companies for every $100 that they bring in, according to consulting firm McKinsey & Company.[15]

Other foundations have stepped beyond traditional program funding of nonprofits by increasing the capital they put to work through program-related investments (PRI) and mission-driven investments (MDI). Program-related investments, as their name implies, are program funds – those usually used as grants by the program staff and coming from the 5 percent of overall assets allocated to advancing the foundation's core mission – but in this case they are structured as non-grant vehicles, such as loans, equity investments or equity equivalent instruments. Such PRIs seek below-market-rate financial returns, combined with their social returns on investment (SROI). Meanwhile, mission-driven investments come from a foundation's endowment capital – the 95 percent of foundation assets that are not required to be distributed toward social impact, which are typically invested in traditional profit-maximizing ways. But while they generally seek market rates of return, MDI funds are invested toward a social purpose (as their name implies). According to the 2007 FSG Social Impact Advisors' report "Compounding Impact: Mission Investing by US Foundations," dollars allocated through mission investments (which they defined as MDIs and PRIs) saw average annual growth of 16.2 percent during the five years between 2002-2007, compared with just 2.9 percent during the preceding 32 years.[16] Although PRIs have increased steadily – from $426.9 million in 1998-1999 to $734 million in 2006-2007, according to the Foundation Center – that still represents only a small fraction of the $91.9 billion in overall charitable distributions of capital (0.8 percent) and an even tinier fraction of overall philanthropic assets (0.04 percent).

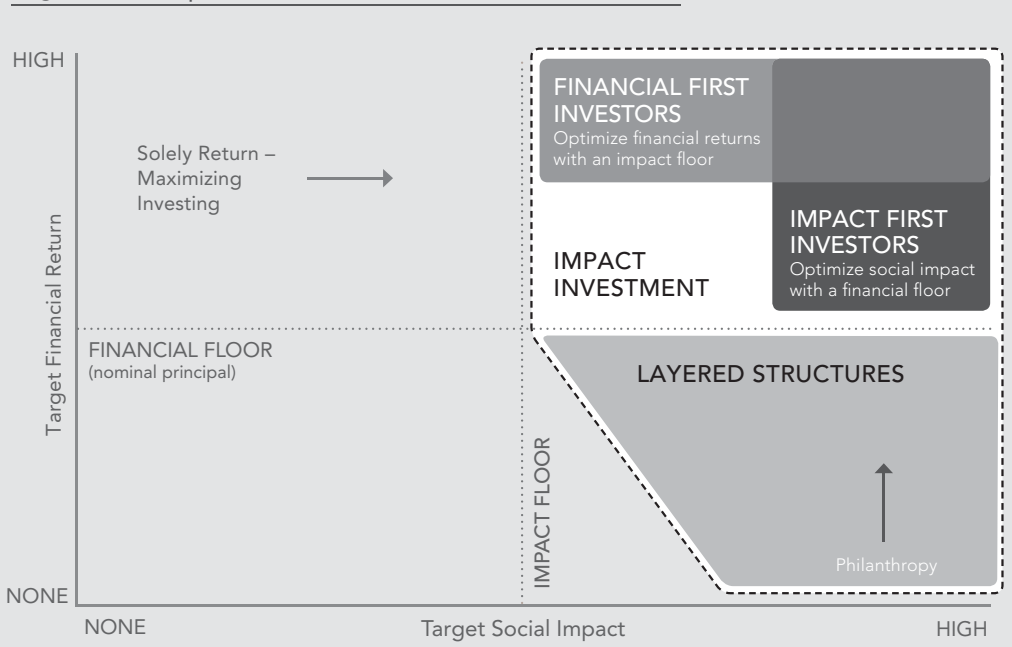
But there is an increasingly sophisticated and active middle ground in this capital market that is often referred to as "blended value" investing. An increasing number of so-called "impact investors" assert that it is possible to achieve both market-rate financial returns *and* significant social impact. "The old binary system—the widely-held belief that for-profit investment could only maximize financial return and social purpose could only be pursued through charity—is breaking down," notes the "Investing for Impact" report cited above. The report situates "impact investment" at a financial return a notch below "financial first" investors though still with the intent to achieve market-rate returns, and with social impact goals a notch below "impact first" investors but still aiming to accomplish a strong degree of social good (see Figure 2). The report was sponsored in part by the Global Impact Investing Network, whose investor members include "large-scale family offices, institutional investors, pension funds, investment banks, wealth managers, private foundations and development finance institutions whose goals lie in the territory between philanthropy and the sole focus on profit-

maximisation, and private foundations." According to a recent Acumen Fund analysis, there are now more than 192 of these "impact investing funds[17]" and JPMorgan Chase thinks this emerging asset class could eventually grow as large as a $1 trillion market.[18]

To rationalize and capitalize this emerging industry, a diverse array of intermediaries has also emerged to bridge the gap between social purpose capital and the social entrepreneurs in need of start-up, operating or growth funding.[20] Some of these are information intermediaries, who build specialized expertise in particular elements of the market. For example, a variety of philanthropic advisory firms – including the Center for High Impact Philanthropy (at the University of Pennsylvania) and Rockefeller Philanthropy Advisors – provide tools, services and advice to individual and institutional donors. They have been joined by Philanthropedia,

FIGURE 2

Matrix of Social Purpose Investing and Relative Social/Financial Returns[19]



Source: "Investing for Impact: Case Studies Across Asset Classes," Parthenon Group and Bridges Ventures, 2009

GreatNonprofits and even classic nonprofit watchdog Charity Navigator, all of whom are working to put out more useful and sophisticated information about nonprofit effectiveness than the old standard of judging them based on who had the lowest "overhead" costs. Social Venture Network has long been convening social entrepreneurial leaders and incubating new programs and organizations to serve them, including BSR (originally known as Business for Social Responsibility) and Net Impact (focused on fostering social entrepreneurship among business school students).

There are also investment intermediaries who look to bridge capital gaps that stand between investors and innovators. Two examples include firms created by former Calvert Foundation leader Tim Freundlich: Good Capital aggregates impact investment capital from high net-worth individuals for social purpose organizations that are growing to scale, and ImpactAssets provides traditional donor-advised grantmaking services as well as technology-enabled systems to help donors to make impact- or mission-driven investments with their endowment capital. They join a range of other financial intermediaries like Investors Circle, which connects individual investors interested in pro-social for-profit investments with screened investment opportunities, thereby improving the collective knowledge and investment rigor among these individuals, and enabling consortia of individual investors to band together with greater support for early-stage ventures. Since 1992, Investors Circle has facilitated $145 million invested in 220 early-stage ventures with social impact.[21] Donor marketplaces like GlobalGiving, DonorsChoose and Kiva seek to make this kind of matchmaking happen with a lighter touch but on a much broader scale.

This diversity of investors and investment vehicles, with their different risk/return profiles and varying degrees of social motivation, has produced an approach to capitalization of social purpose activity that "layers" or "sequences" capital vehicles of different types to reach a total package that trades off levels of financial and social motivations and risks. Perhaps the most robust use of layering different traditional and social investors and financial instruments is in real estate development. The New York City Acquisition Fund was created to mobilize private sector capital to address the shortage of property available for low-income housing development and aims to develop 30,000 affordable housing units in New York City over the next 10 years. The fund has raised $200 million from both financial-first investors (Bank of America, JPMorgan, HSBC) and impact-first investors (foundations including Rockefeller and Ford). The banks provide senior debt as lending capital, while impact investors provide guarantees and/or low-interest subordinated loans. These layering efforts require complex financial knowledge and careful attention to balancing social and private returns and

motivations, but they allow social purpose efforts to access much larger amounts of private capital than they otherwise would be able to.

In addition to layering and sequencing to access more capital, some have turned to "royalty-based private equity capital," otherwise known as "revenue capital." "Revenue capital allows investors to fund businesses and generate returns based on the venture's revenue, rather than via debt or equity," notes technology executive Safwan Zaheer. "In other words, investors put cash into a startup, and rather than receiving the company's stock, the investor receives a percentage of the business's future revenue for a period of time." Zaheer notes that former Westinghouse and Hewlett-Packard engineer Arthur Fox found success with this model in revenue-based funds in the 1990s, with internal rates of return greater than 50 percent.[22]

Another emerging innovation in social purpose capitalization is the use of nonprofit or "hybrid" equity stakes that bring together for-profit companies and investors with nonprofit organizations that benefit from the companies' success. For example, Better World Books is a for-profit "triple bottom line" online bookseller that seeks to have a social impact (improve literacy), environmental impact (diverting used books from landfill) and economic impact (make money). Together with one of its main funding partners, Good Capital, the company created an Incentive Stock Option program that carves out 5 percent of the company founders' stock to be granted to five of the nonprofit literacy organizations it partners with. Subsequent rounds of performance-based options will reward those literacy partners "based upon the partners' ability to achieve their own internal metrics for delivering on specified social purpose goals and objectives as well as how effectively they promote the collection and sales of books collected in book drives that provide Better World Books with its inventory."[23]

Contributing Trend #3: Public-Purpose Market-Shaping

Another relevant development that is part of this convergence of the sectors is the emergence of intentional market-steering by the philanthropic or public sector in a way that is designed to engage the private sector in social purpose activities. This kind of market-shaping activity by government falls under what authors and progressive activists Eric Liu and Nick Hanauer call a "more what, less how government." In a recent *Democracy* article, they lay out their vision:

> *A robust state is not mutually exclusive with a free market; it is required for it. This is why there is no robust private sector on earth that isn't accompanied by an equally robust public sector.*

> *Societies can be successful* only *with the civic cooperation, strategic organization, and economic moderation that activist government provides. And the larger and more complex a society becomes, the more government must do to provide the basis for continued success. True prosperity is always a consequence of generalized prosperity, and* only progressive activist government *can achieve that. The law of the jungle–market fundamentalism–brings just one possible outcome: a jungle.*
>
> *Government is what turns the jungle into a garden. To govern poorly is to "let nature take its course," which results in wild growth by a few noxious weeds and the eventual collapse of the garden. To govern well is to tend the garden: to weed, to seed, and to feed. We believe firmly that a market is the best tool ever invented to generate solutions to human problems. But since there is no such thing as a market without a government, the only question is how well, to what ends, and with what skill the government shapes and adjusts the life of the market–how well it tends–so that it yields solutions for the common good.*[24]

This kind of complex market-shaping includes public policies that seek to encourage the flow of capital toward social innovation, which may prove instructive to education efforts. The increasing energy around impact investing has led to a great deal of work on the policy supports that can foster and facilitate such investments. "Policy mechanisms have the potential to change the underlying risk/return trade-off and address structural barriers…and may be a critical lever to motivate massive amounts of capital to engage in impact investing," noted a recent report highlighting this opportunity for policymakers to steer the social capital market.[25] Another new report on the same topic frames three specific ways in which public policy can fuel investment capital in particular: *increasing the supply of capital available* "by mandating such investment or by enticing investors through risk-sharing with government"; *directing the way capital is spent* "by adjusting market prices and costs and improving transaction efficiency and market information"; and *building demand for such capital* by building the capacity of and enabling structures for recipients of that capital.[26]

Market-shaping policy is nothing new for U.S. government agencies, many of which have long been using their regulatory power to spur the flow of capital toward particular outcomes.

Certainly, the use of public regulations to help create markets for or steer them toward some social purpose goal is not a new phenomenon, though the application of these ideas to purely social service arenas is newer, and will require sophisticated social problem-solving logic

and infrastructure that are different from traditional government intervention in financial markets.[27]

But market-shaping policy is nothing new for U.S. government agencies, many of which have long been using their regulatory power to spur the flow of capital toward particular outcomes. When the goal has been to advance or steer technology development and adoption, this has taken the various forms of creating new nonprofit venture capital organizations, establishing co-investment networks, partnering with existing venture firms or setting up internal programs that make investments directly into early-stage companies. For example, In-Q-Tel, established by the Central Intelligence Agency, is a nonprofit venture firm that partners with the CIA to define the critical intelligence-community needs, source companies and technologies that are best poised to address those needs; make equity and other investments to accelerate the development of relevant solutions; and help to match those solutions with national security and intelligence-related customers. As such, In-Q-Tel connects emerging technology innovations (the supply side), the most important needs in the field (as defined by the CIA and others on the demand side) and private investors who bring expertise and have economic incentives to support these companies. It is interesting to note that a slice of In-Q-Tel employees' salaries goes into a fund that matches $1 for every $3 invested by In-Q-Tel itself – a way of explicitly aligning the organization's financial gains with employees' own personal fortunes, similar to a VC partnership. Meanwhile, in 2002 the Department of Defense (DoD) created the Defense Venture Catalyst Initiative (DeVenCI) program to identify emerging technologies that might be useful to advancing defense – and the chance to influence their development. DeVenCI does not make investments, but bridges private sector providers and public sector demand by brokering relationships between these technology companies and prospective DoD customers.

When the goal has been to mobilize private capital to grow small business and foster economic development within specific communities, government agencies have sometimes turned to bond guarantees, loan guarantees and debt leverage. For example, the Overseas Private Investment Corporation (OPIC) was established in 1971 as an independent government agency "to mobilize and facilitate the participation of United States private capital and skills in the economic and social development of less developed countries and areas, and countries in transition from nonmarket to market economies." OPIC does not invest directly. It works by setting priorities and then selecting relevant expert intermediaries who invest in overseas markets. OPIC creates market-steering incentives by providing loans, loan guarantees, political risk insurance and debt capital to these private equity investors who, given this adjusted risk/return context, agree to invest in specific priority geographic areas.

Tax credits are another approach to stimulating investment in priority communities. For example, New Markets Tax Credits (NMTC) were created to spur investment of private sector capital in low-income communities by providing a tax credit for those who make equity investments in Community Development Entities (CDEs), which in turn use investor funds to make below-market financing available in those communities. To date, the organizations awarded these tax credits have raised $15.8 billion in investments for these communities, though they have largely been limited to real estate.[28]

Some of the most robust examples of public market-shaping for social good can be found in environmental efforts, where it is widely agreed and empirically established that market-shaping mechanisms have created substantial impact in environmental outcomes. According to Robert Stavins, director of the Harvard Environmental Economics Program:

> *With appropriate rules and oversight, markets have been shown to work exceptionally well to address environmental problems. They provide key flexibility to regulated entities to adopt least-cost approaches to emission reductions, while providing powerful incentives for technological innovation and diffusion, which serve to reduce costs over time. Real world experiences with using market-based instruments for environmental protection include CFC trading under the Montreal Protocol (to protect the ozone layer); SO_2 allowance trading under the U.S. Clean Air Act Amendments of 1990 (to curb acid rain); NO_x trading (to control regional smog in the eastern U.S.); and eliminating lead from gasoline in the 1980s.*[29]

In an effort to reduce emissions, the state of California has spurred solar and alternative energy investment by steering funds and incentives toward both suppliers and buyers, first by mandating investment in solar infrastructure by the large investor-owned utilities in 2000, and later adding the requirement that these utilities provide "net metering" or the opportunity for solar users to sell back their extra solar-generated energy to the utility at set minimum rates. The state also added tax credit incentives and rebates to encourage homeowner and business installation of solar cells. These California alternative energy steps show that in efforts to support entirely new markets to encourage a social purpose, the government may have a role to play in stimulating both supply and demand. According to the Clean Economy Network, California's progressive environmental regulations have not only created significant environmental impact, but also created jobs and economic growth in the state. Assessing some of California's recent market steering policy activity, Fred Krupp, president of the Environmental Defense Fund, described it as "a very smartly designed policy mechanism that

gets away from micromanaging the economy and instead leaves folks free to choose the best way to meet the requirement of lowering emissions."[30]

Europe has taken the idea of stimulating supply and demand for the social impact of green energy one step further by instituting a "feed-in tariff" approach. Utilities are required to pay above-market rates for green electricity, shifting the burden from taxpayers to electricity ratepayers. In Germany, where feed-in tariffs have been in place since 1991, about five times as many photovoltaic panels have been installed than in the United States, though they still account for only 0.5 percent of electricity in that country. The approach has gained some attention and early traction in some states here. Describing a feed-in-tariff solar program implemented in Florida, Boston energy consultant Wilson Rickerson told *The New York Times*' Kate Galbraith that it is helpful policy because in addition to accomplishing environmental impact: "If you put your money in, you know you're going to get it back."[31]

Meanwhile, in medicine, some government or philanthropic entities have used Advanced Market Commitments (AMCs) to stimulate the development and manufacture of vaccines specifically for developing countries. Donors commit money to guarantee the price of vaccines once developed, thus creating the potential for a viable future market. These donor commitments provide vaccine makers with the incentive they need to invest the considerable sums required to conduct research and/or build manufacturing facilities. As part of the AMC, participating companies also make binding commitments to supply the vaccines at lower and sustainable prices after the available donor funds are exhausted. An independent advisory group makes decisions in advance about which diseases to target, criteria for effectiveness, price and long-term availability.[32] In 2009, a variety of international organizations and finance ministers joined with the Bill & Melinda Gates Foundation to accelerate introduction of vaccines against pneumococcal diseases in developing countries. The currently existing pneumococcal vaccine is sold at over $70 per dose in industrialized countries, but as a result of the AMC, the long-term price for developing countries is estimated to be $3.50. In 2010, GlaxoSmithKline and Pfizer became the first two companies to make long-term commitments to supply the new pneumococcal disease vaccines.

Finally, two recent efforts in the United Kingdom demonstrate the next generation of how the government can use its market powers to engage the private sector in a way that establishes strong performance incentives for social impact: performance contracts and social impact bonds.

Performance Contracts. Governments have for decades been increasing the use of contracts with outside providers to deliver social services. While in some cases there have been cost savings, there have been significant quality issues, and in most cases little or no improvements in terms of social outcomes. Performance contracts are a way to ensure that public-private partnership spending is done wisely and in a way that accomplishes greater outcomes and shares the risk with the private sector. Used effectively in roads and construction contracts, but new to the social service sector, performance contracts clearly define the intended outcomes (not merely inputs or processes), with compensation heavily weighted toward the later stages of the work and pegged to the accomplishment of the defined outcomes. In the U.K., with 1 in 4 citizens unemployed, in 2010 the Department for Work and Pensions was looking to dramatically improve the outcomes of employment programs. "We must be here to help people improve their lives – not just park them on long-term benefits," one industry article quoted Work and Pensions Secretary Duncan Smith as saying, adding that "he made clear his intention to increase the use of private providers and the third sector to deliver routes back into work, but warned the providers would be rewarded for creating sustainable jobs and the government 'are not prepared to pay for anything less.' "[33]

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They then launched a complicated bidding process for multiple large-scale contracts to help overhaul the U.K.'s immense and costly re-employment programs. "Payment should be exclusively or largely for delivering results and that payment should be made after the results have been delivered," read government descriptions of the performance contracts. "The price paid for job outcomes should be set to make it worthwhile for delivery partners to help each group of customers. We should not specify what delivery partners can, or should, do; they should have freedom to innovate. And the price paid for the job outcomes should not exceed the benefit savings that have been generated."[34]

These larger, longer-term contracts were appealing to the companies that bid for them, because of the opportunity to earn profits of as much as 20 percent; but only if the program reached and sustained impact (as defined by workers remaining one, two and three years or more on their new jobs) – with little to be gained, and potentially significant investments lost, if results were not strong and sustained. This approach creates some big upfront challenges to financing the work, but moves a lot of the risk from the public sector to the private sector, and provides huge incentives for attention to outcomes.

Social Impact Bonds. Another version of this kind of performance-driven market-making effort in the U.K. is "social impact bonds." This approach begins with identifying social problems whose improvement would save the public large sums of money. In the pilot case, this problem is prison recidivism reduction. The British government will issue up to 5 million pounds in "social impact bonds" whose proceeds will finance efforts to tackle this problem by working closely for six years with 3,000 short-term prisoners in a concentrated region. Compensation to bondholders is determined by success in producing better outcomes: "The bond gives its investors a powerful incentive to finance organisations that will turn these ex-jailbirds into upright citizens," notes a recent article in *The Economist* on the experiment. "If they can reduce the rate of reoffending by at least 10%, the investors will be paid, the amount rising as the recidivism rate falls. If the payout is triggered—a 10% decline representing proof that the improvement is due to more than chance—the investors will earn a minimum internal rate of return of 7.5%, rising to a maximum of 13%, with payments made during years six and eight."[35]

"The current model of private finance for public services tends to focus chiefly on reducing the cost of the current activity," notes the *Economist* article. "Sometimes there are performance elements, but what is new about the government's scheme is that it incorporates incentives for radically improving outcomes into the financing model." There are some real risks of perverse incentives in these kinds of performance-driven schemes (such as efforts to "cream" the easiest-to-serve clients), but also real potential to replace ineffective government and private spending with outcomes-based programs and flows of capital that accomplish the social purpose we want from them. This approach is not without risk, nor is it simple. But as a point of reference to understand why this kind of experiment is worthwhile, it is important to consider the alternative. For instance, here in the United States, "the state of California annually spends almost $250,000 on each youth in its juvenile-justice system – and gets an 80 percent recidivism rate," note Liu and Hanauer. "If this happened one time, with one year's cohort of kids, it would be an abysmally poor use of resources; that it happens year after year, without change or improvement, is criminal."[36]

President Obama's FY 2012 budget, released in February 2011, proposes the "Pay for Success" initiative, which appears to be based largely on the U.K. social impact bonds model. A recent Center for American Progress report highlights the promise of this new financial tool to help accelerate social innovation and improve government performance in the U.S., while at the same time calling attention to important infrastructure that will be required in order to implement this model successfully:

> *The United States needs to take three capacity-building steps to create social impact bonds. First, governments will need to develop or acquire the capacity to write effective pay-for-performance contracts. Second, a neutral authority to measure outcomes and resolve disputes, independent of both the government and the bond-issuing organization, will need to be identified or created. Third, and most important, one or more social impact bond-issuing organizations will need to be created, with the capacity to raise capital from private investors, negotiate performance-based contracts with the government, and hire and manage service providers.*[37]

On February 22, 2011, Social Finance, Inc. announced it is creating a new nonprofit organization to help enable social impact bonds in the U.S. The combination of the president's budget request for "Pay for Success" and Social Finance's announcement suggests that performance contracts and social impact bonds will be important elements to consider in a discussion about ways to encourage more performance- or outcomes-based funding in U.S. education.

Together, these trends – social entrepreneurship, social purpose capital and public-purpose market-shaping – form a backdrop for the present opportunities to improve the ecosystem for innovation in education. The number of education entrepreneurs and the impact and scale of their organizations have been on the rise over the last two decades. At the Aspen Institute's Education Innovation Forum & Expo in January 2011 – an event that would not have happened 10 years ago – hundreds of capital providers and entrepreneurs convened to consider how best to spur educational innovation. Meanwhile, the U.S. Department of Education and other areas of the federal government have also edged closer to more explicit and well-thought-out market-shaping activity to fuel the innovation necessary to dramatically improve educational processes and outcomes. The remainder of this paper will consider how far we have come and what it will take to create a robust ecosystem with an aligned capital market to support an ongoing cycle of innovation and improvement in public education.

ANALYSIS:
COMPARING EFFECTIVE MARKETS WITH THE PUBLIC EDUCATION ECOSYSTEM

Social entrepreneurs, social purpose investors and public-purpose market-shaping policies all hold a great deal of promise for fueling useful innovation in public education – but only if they are part of an ecosystem that supports and demands constant learning and growth. Unfortunately, our public education ecosystem today is missing many of the components necessary to support a continuous cycle of innovation and improvement. These components include:

1. Clarity and agreement on the problems, goals and metrics for success
2. An effective research and development (R&D) system
3. A culture that is evidence-based, with incentives and infrastructure aligned for continuous improvement
4. Data that are transparent, available, comparable and useful
5. Robust, diverse and aligned investment capital

1. Clarity and Agreement on the Problems, Goals and Metrics for Success

In the traditional capital markets, it is clear how to "keep score" because success is defined as maximizing shareholder value, which is calculated in dollars. This simple metric allows

the rest of the system – information, services and regulations – to function in reasonable alignment, and the calculations leading up to that goal can be understood by all. Similarly, in efforts to improve energy solutions, it is widely accepted that the major goal is reducing carbon emissions and developing more effective alternatives to fossil fuels, and there are widely agreed-upon approaches to measuring success in this effort. For example, the Kyoto Protocol defined the amount that industrialized countries would reduce their collective emissions of greenhouse gases (by 5.2 percent by 2012), using common metrics to measure progress, including greenhouse gas emissions avoided or sequestered, tons of carbon avoided and megawatts of alternative or green energy produced. Governments are using diverse strategies to accomplish these bold goals, but they agree on the goals, the problem and the metrics to measure progress.

In contrast, there is no universally agreed-upon goal for public education, with warring ideologies tugging at the edges of any consensus that might otherwise emerge. Education is both a public and a private good, which introduces a legitimate tension about the extent to which it should prioritize the needs of society and communities as a whole, versus the needs of individual students. To oversimplify a bit, one camp prioritizes community and equality above all (even if that means an equally mediocre standard of achievement) while the other prioritizes individual opportunity and efficiency (even if that means leaving some children behind). This ideological struggle plays out most vividly in the school choice debate, with voucher supporters digging in their heels despite evidence from programs like food stamps that simply adding a free-market approach doesn't necessarily lead to better social outcomes, and defenders of the status quo fending off any increase in diversity of providers and parental choice despite the obvious low quality of existing options for low-income communities. These are deep values-based debates that play out across many issues, from pedagogy to content to management to governance.

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And education is admittedly complex. It is a social good, one through which we expect students to master not just technical skills or knowledge, but also certain social values, cultural norms and socio-emotional habits – most of which are difficult, if not impossible, to measure. "Unlike molecules, which follow the rules of physics rather obediently, human beings have minds of their own, and are subject to many social, psychological, and environmental forces," notes Geoff Mulgan, former government adviser in the United Kingdom and now director of

the Young Foundation. "Several decades of involvement in evidence-based policymaking has shown me that although evidence should inform all action, very few domains allow precise predictions about what causes will lead to what effects. The social sciences (including business) simply do not have laws in the way that physics has."[38] Therefore, it is very difficult to agree on one set of educational metrics, because not all dimensions of education's social value can be easily quantified. As a result, efforts to become more performance-driven in a social good like education require a multi-faceted evidence base – a complex but not impossible task.

Although it has been very difficult to prioritize among these competing goals and to keep public support aligned with reform, pressure from economic stagnation and recession here in the U.S. – combined with a very tangible sense of competition from abroad – seems to be leading toward a consensus that all students deserve to be taught to internationally benchmarked academic standards and must be prepared for college-level work. This builds on the momentum over the last several decades toward standards and accountability, which has emphasized *outcomes* rather than *inputs and processes*, and has opened the doors for entrepreneurs and others to try different approaches for accomplishing those improved outcomes. This momentum is what finally allowed the widespread adoption of the Common Core State Standards, which consist of both a smaller number and higher level of academic standards for students than previously embodied in the fragmented system of wildly different individual state standards.[39] While not all states have signed on, and the Common Core State Standards so far only cover math and reading, they are a giant step toward a broad new agreement on what we want students to know and be able to do and by when.

Furthermore, when developed, assessments that measure learning against these standards will similarly help identify common metrics that states, districts and entrepreneurial school operators can all report against. As wireless technologist Marie Bjerede recently wrote:

> *Education as a platform must support vibrant innovation in the area of metrics. States, assessment publishers, web start-ups, researchers, parents and teachers must be able to experiment with different ways to measure student achievement, and, indeed, with what things are important to measure. In a world of assessment innovation, a student portfolio might contain a combination of completed projects in addition to state test results, richer third-party assessment results, and innovative assessments of non-traditional skills such as collaboration and creativity. Colleges and employers might value this multi-dimensional view of a student more than just grades and standardized test results when evaluating applicants. Parents and students might take ownership of enriching their portfolio of assessments according to their own values. Publishers of curriculum and educational*

experiences might be able to improve their offerings based on a broad set of assessments of student outcomes – driving innovation in educational content. Administrators and states might be able to reward teachers for many different kinds of critical achievements.[40]

This is an attractive picture that both education reformers and traditionalists could get behind – but must begin with a primary set of clear core goals and metrics, upon which these additional layers of desired outcomes can be added.

2. An Effective Research and Development (R&D) System

An effective research and development (R&D) system identifies the most pressing problems of practice, invests quickly in promising innovations and ideas, provides small spaces for experimentation, and engages entrepreneurs and other innovators in ongoing evaluation to ensure continuous improvement and learning. This cycle is most familiar in the corporate world, where companies like Xerox, Merck and 3M have long had an economic imperative to maintain their competitive edge by investing significant resources in research and converting the results of that research into marketable products that align with significant user needs.

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In the public sector, R&D has been used to harness similar energy to develop solutions and technologies. The most commonly cited example of a publicly supported R&D effort is the Defense Advanced Research Projects Agency (DARPA). Charged with providing advanced research of new technology for use by the U.S. military, DARPA typically engages in two- to five-year projects, with Operational Liaisons from each military service helping to maintain DARPA's connection to real-life problems and also connecting DARPA technology back to each military branch. Project funding is milestone-based, establishing accountability for ongoing evaluation and supporting an outcomes-oriented culture. Technical staff rotates every four to six years to encourage fresh thinking and risk-taking, and directors have flexible hiring authority. With DARPA as its model, the Department of Energy recently launched its own Advanced Research Projects Agency-Energy (ARPA-E) to "bridge the gap between basic energy research and development/industrial

innovation." The agency's objective is to make technologies market-ready quickly, with projects ranging from one to three years. Here also, agency directors have flexible hiring authority, project managers have limited tenures of three to five years and project funding is milestone-based.

Unfortunately, in education, there has historically been no corollary for effectively identifying the most pressing problems of practice, or policies designed to arrange incentives and rewards that will encourage innovation to solve these problems – though both may be changing with the recent announcement of ARPA-ED, a DARPA-like program for education, and the general emphasis of the Obama administration on strengthening research and innovation across a variety of fields. In a sense, education actually has historically had the opposite of a virtuous learning cycle, where a combination of nostalgia for tradition, misalignment of resources and the tendency for ideology to trump evidence have together inhibited effective R&D. Generally, research in education has not been required to connect clearly to the most pressing and important problems of practice, and has therefore been largely theoretical, ideological and less than rigorous in its standards for providing useful evidence or a robust and constantly improving knowledge base for the field. A quick look at the agenda for any American Educational Research Association conference[41] shows that the field is primarily focused on research about narrow content concerns, rather than on the structures and practices in which learning happens. Less than 0.1 percent of K-12 expenditures are in R&D.[42]

Though there is some notable philanthropic support for educational research, the major driver of educational research spending has been the $200 million budget of the Institute of Education Sciences (IES) at the federal Department of Education,[43] with some related funding from the National Institutes of Health and the National Science Foundation. After a brief period of over-correction that sought to push only randomized controlled experimental studies, IES appears poised to make changes that will bring educational research closer to problems of practice, and to institute rigorous but multi-level evidentiary standards (perhaps somewhat similar to the three levels of evidentiary standards employed in the federal Investing in Innovation competition). "The Institute will encourage researchers to develop partnerships with stakeholder groups to advance the relevance of the Institute's work, the accessibility of its reports, and the usability of its findings for the day-to-day work of education practitioners and policymakers," noted IES Director John Easton in a document summarizing the agency's priorities. "In addition to supporting new research, the Institute will promote the synthesis and dissemination of existing and ongoing research to construct coherent bodies of scientific knowledge about education."[44] If this is done, it would help a great deal to refocus educational

research on more practical and useful work that could in turn help drive a more effective development and solutions engine.

Meanwhile, the university professors who conduct the vast majority of education research are not ready for – nor incented to provide – the kind of field-based and problem-based multi-disciplinary research we need to propel effective R&D in education. "From state standards to classroom management, from technology to pedagogical issues, education professors pursue objectives that sometimes ignore – and even contradict – the policies and challenges that their students will face as actual teachers," the FDR Group found in a recent survey of education professors conducted for the Thomas B. Fordham Institute. "Professors appear to be saying that it is the real world that needs to change, not them. As they see it, each wave of new teachers they send into the nation's classrooms should challenge the status quo and provoke change. Thus, the disconnect between the real world and the ivory tower is not only one of their own making, but conscious and purposeful."[45] As such, research agendas in education have often been driven by researchers' ideology and theoretical interests, rather than by pressing problems of practice. So, instead of promoting improvements in the way teachers teach and the way students learn, higher education is generally an inhibitor to sustained educational innovation.

Because of this historical disconnect between practice and research, education, unlike many other fields of public import such as medicine or energy, does not have a clearly and widely accepted knowledge base upon which to build. For years, former education researcher and professor (and now philanthropic leader) Anthony Bryk has been calling for a "design-engineering-development" orientation to such research. "A new infrastructure is required, building its agenda around the core problems of practice improvement rather than isolated academic theories or currently popular, but ungrounded, policy ideas," says Bryk. "Productive innovations need to be co-developed by researchers and practitioners, tried out in schools, refined and retried. Such work entails an engineering orientation where the varied demands and details of local contexts are a direct object of study and design, rather than being decried as a 'failure to implement properly.' "[46] One model that Bryk's Carnegie Foundation for the Advancement of Teaching and other organizations are considering is the "90-day cycle" developed by the Institute for Healthcare Improvement (IHI) as a way to accomplish deep, rapid research. According to Carnegie, the 90-day cycle process consists of: (1) a scan of the field, distilling the knowledge of scholars as well as practitioners; (2) a focus on particular front-line theories to refine and test understanding about what works; and (3) working to ensure the take-up and use of the findings by appropriate parties.[47]

A broken research engine inhibits potential entrepreneurs, not to mention their investors, who might otherwise leap at the chance to apply useful field-based research to develop better products or services that could make a difference for educators and students at scale. Contrast this to the work of DARPA and ARPA-E, where basic research is intentionally and thoughtfully linked to development activity and investment to help users in the field. The Department of Education's recent Investing in Innovation (i3) competition provided a new "field scan" approach to help elicit innovations from the field that align with defined priorities. This is a good addition to the R&D cycle, but it should not replace an ongoing and intentional development cycle that, as Srini Mirmira from ARPA-E describes, reviews the outputs of research investments and repeatedly asks the question: "What is the best way to leverage this basic research?"[48]

This approach may finally come to fruition with the creation of the Advanced Research Projects Agency-Education (ARPA-ED) within the U.S. Department of Education, announced in February 2011. Modeled after DARPA and ARPA-E, ARPA-ED will "develop transformative, game-changing education technologies – technologies that will be interoperable and build strategically upon one another to achieve progress at scale."[49] The president's FY2012 budget request to Congress, released in February 2011, includes $90 million for the agency, provided through a combination of discretionary and mandatory spending. (The same innovation announcement also cited plans to accelerate the market for advanced learning technologies by working with the Department of Defense Education Activity (DoDEA) schools as early "customers" for effective new approaches.)

One other promising effort that could help drive more effective educational R&D is the National Center for Research in Advanced Information and Digital Technologies. Also known as the Digital Promise Project, the center aims to provide grants and contracts for R&D projects that explore the way advanced technologies can support learning in K-12 and higher education, as well as government and corporate training. The center was first proposed more than a decade ago by former media executive Lawrence Grossman and former Federal Communications Commission chairman Newton Minow, who called for a multi-billion-dollar trust that would act as a "venture capital fund" to research learning technology. Congress finally approved a $500,000 appropriation for the center in early 2010 (far lower than the $50 million requested when the center was authorized in 2008). Though partially funded by the federal government, the center is an independent nonprofit organization overseen by a board of directors appointed by the U.S. Secretary of Education, so it has the potential to bridge public sector goals with private sector flexibility.

3. A Culture that is Evidence-Based, with Incentives and Infrastructure Aligned for Continuous Improvement

As discussed earlier, public education has long been mired in a culture of compliance. Without a clear evidence base, or the commitment to resolve ideological battles based on that evidence, there has rarely been a real incentive for schools or school systems to change. Unlike businesses that have an economic imperative to profit or perish, public school systems are rarely compelled to adopt better practices or tools, and almost never get shut down for failing to deliver quality educational options, which decreases the willingness of entrepreneurs to undertake the hard work of producing innovative solutions (and taxes the patience of private investors and philanthropic funders who underwrite their efforts in the hope that states or districts will purchase them when they see the obvious value). Even those districts or schools that truly *want* to change things for the better often find their hands tied by work rules and collective bargaining agreements that further calcify compliance norms.

By reducing fragmentation and streamlining goals and metrics, the Common Core State Standards will simplify development cycles and thereby reduce barriers to entry for new providers of content and assessments. Performance evaluation systems for educators and related outcomes-based systems will help to rationalize incentives throughout the system. Together, these shifts should help to provide incentives for investors, innovators and buyers to align around these new emerging needs. But this shift must be coupled with robust investments in the kind of infrastructure – rules, regulations and systems – that will solidify and reinforce these content standards and related new cultural norms (moving away from things like a preference for stability over dynamism and peaceful conversation about process, toward honest conversations about results) into the kind of system we need to foster real and ongoing innovation. These include new regulations and systems for preparing, evaluating and compensating educators, and vastly more responsive mechanisms for funding public education. This kind of shift means directing more funding to things that work, and removing resources from those that don't.

Indeed, moving toward a more responsive, dynamic market for educational innovation will require adopting a culture and infrastructure that aligns financial resources and incentives in support of improved processes and increased outcomes – and away from things that, while comfortable, simply don't work. Federal efforts like the What Works Clearinghouse and Doing What Works have been somewhat helpful in encouraging this kind of improved evidence-based practice. But the three levels of evidentiary standards (Development, Validation and Scale-Up) in the recent i3 competition took it a step further, providing differentiated but

rigorous standards for evidence, based on the stage and scale of an innovation's development. The i3 competition also helped to improve the field's base of knowledge by requiring i3 grantees to participate in ongoing evidence-building processes.

In order to drive deep cultural changes in this compliance-based system, public funding for schools and students must flow in a more rational and responsive manner, tailored to the needs of students and administered in a way that can be adjusted nimbly as needs change. One example of this kind of shift in funding is a "weighted student formula" approach, which some believe would better create incentives to serve students with the greatest needs, by basing funding on a set of defined student characteristics and needs instead of formula-based categorical funding and building-based budgeting that directs funds based largely on teacher seniority and choices. Another example of how the funding infrastructure needs to be shifted is the millions of dollars in federal technical assistance funds that were rigidly defined, and thus unable to be re-deployed as states grappled with the challenge of redesigning their goals and systems to compete for Race to the Top grants.

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"Performance guarantees" also hold promise as an innovative practice that sits where culture and infrastructure meet, and that might enable more public-private partnerships and innovation in education. In this approach, public sector decision-makers – such as districts or states interested in tapping private sector or nonprofit contractors to provide services like taking over chronically failing schools – could enter into a three-way contract of sorts. As explained by Bryan Hassel and Daniela Doyle, the contract with the service provider would stipulate outcomes targets, and the third signatory would be a foundation that would provide a performance guarantee to the district. Then, if the service provider did not successfully meet the increased social outcomes/benefits as defined in the contract, the foundation would repay the funds to the district (or other contracting agency). As the authors contend, this kind of arrangement might help mitigate the cultural and risk aversion many public leaders have toward tapping outside providers, and incent both the public agencies and the outside providers to take more of a leap together on bold goals.[50]

Another way that the culture of compliance might shift can be seen in the "Red Tape Reduction Act" in Louisiana, which was enacted in summer 2010 to reduce bureaucracy in

the state's education system and provide schools the flexibility needed to improve student performance. The law gives local officials the option of seeking four-year waivers from various state laws and rules, such as classroom size, instructional time and curriculum, in order to pursue innovative approaches. (However, as of January 2011, zero districts in the state had requested the waiver, according to Louisiana State Superintendent of Education Paul Pastorek.)[51]

Education is at heart a service business and as such, any conversation about its culture or infrastructure must address the way its labor is selected, developed and managed. Many professional fields – including law and medicine – have a segmented system of licensure and preparation that involves selection criteria appropriate for the type of work being done, and various levels of advanced certifications. Within the medical field, for instance, there are different entrance and completion requirements for becoming a lab technician, a nurse, a nurse practitioner, a doctor, a board-certified specialist, etc. In education, universities and state licensure systems are rarely selective, and generally do not provide any kind of tiered system or competency-based assessment, and thus do not provide a reliable pipeline for identifying, preparing and supporting the kinds of educators we need for this new kind of dynamic, innovative and performance-based work in education. This has created shortages of effective talent where it's needed most (especially in hard-to-staff subjects and schools) and failed to support and develop those teachers and principals who are most effective, while improving or counseling out those who are not effective. Furthermore, the National Board for Professional Teaching Standards (the closest thing education has to an advanced industry certification) has not been shown to have a strong evidence base for connection to student impact.

While there have been some notable entrepreneurial efforts at innovation to improve talent development – including not only Teach For America, The New Teacher Project and New Leaders for New Schools, but also newer entrants like the Academy for Urban School Leadership (AUSL), Teacher U, Urban Teaching Center and Leading Educators – most of the traditional talent preparation programs have largely functioned as accountability-free cash cows for institutions of higher education. Improving this piece of the infrastructure will require a combination of state policy (including the tracking of which preparation programs are actually developing teachers who have a positive impact on student learning, as Louisiana and other states are starting to do) and other ways to connect the preparation, recruitment, support and ongoing professional evaluation, management and development of educators in a more systematic way. The recent *Newsweek*-National Council on Teacher Quality (NCTQ) partnership to rate teacher education institutions is a sign that the field is beginning to take quality more seriously.

Until this past year when the federal Race to the Top competition inspired dramatic state-level policy reform, many states not only did not provide incentives to evaluate and improve instruction, they actually expressly forbade connecting student-level performance data with teacher-level data. Moreover, the prevalence of "last-in, first-out" layoff policies that are "quality-blind," and favor seniority over performance when decisions are made about which teachers will be let go when budgets are cut, indicate the kinds of cultural and infrastructure shifts that will be required.[52] Many have resisted such moves because they incorrectly assume improved teacher productivity and teacher job satisfaction are a zero-sum game: you can either improve teacher productivity or support teacher job satisfaction, but not both. However, entrepreneurial efforts like School of One in New York are showing how a smart technology platform can not only customize student instruction and improve learning, but also enhance teacher effectiveness while simultaneously improving teacher job satisfaction by allowing teachers to teach what they are best at and only teach students who are actually ready for that content. Similarly, Rocketship Public Schools in California is using computer-assisted instruction for some basic skills, and then using the cost savings to increase teacher salaries without requiring additional funding.

In a labor-intensive field like education, massive productivity gains will also require the use of technology and an increasing attentiveness to assessing productivity as part of management strategy. "The return on investment mindset that drives other sectors to replace expensive labor with technology, and that sees the logic of scaling such efficiencies rapidly, does not come naturally to K-12 [administrators]," says Wireless Generation CEO Larry Berger, whose company leveraged its success with preK-3 assessment products into developing K-12 technology tools for supporting data-driven instructional decision-making before most districts and states were really ready to adopt them. "The problem for education ventures is that such administrators will tend to make decisions within their comfort zone – they will usually choose to solve a problem with additional district people and processes rather than with tools, systems or outsourced resources – without regard to whether the additional district people might be the more expensive or less effective option."[53] "In other fields, many of the compelling applications of technology have to do with making labor more efficient, thereby enabling a reduction in people or an increase in output," notes Berger. "Even if the education sector is not interested in reducing the number of teachers, it would still be good for the teaching profession, and for the ability of entrepreneurs to articulate their value propositions, if the education system started to quantify the value of a saved teacher-hour in terms of its increased instructional output."[54]

But resistance to technology in education is legendary. A recent analysis by the Parthenon Group (funded by the Carnegie and Stupski foundations), investigating next-generation learning supply-side needs, suggests that this historical resistance may be as much about infrastructural limitations as about cultural resistance: "The analysis uncovered a surprising fact regarding technology: education is the only sector where technology *reduces* productivity, because it is always additive: when new technologies are introduced, old resources are not taken away."[55] As such, to be useful in education, new productivity tools must be implemented in a way that removes old systems while adding new ones, and directs resources away from ineffective or outdated technologies in support of those that are most needed and useful. This same report is also helpful in its analysis of infrastructure supports that are required to enable real "next generation" and "hybrid learning" environments – including knowledge networks, focused capacity-building intermediaries and more-focused funding resources.

And lastly, this cultural and infrastructural shift toward evidence- and performance-based practices and incentives throughout the policy and management levels of the education system would be accelerated substantially by a shift toward a competency-based model for delivering and measuring students' academic progress. As Michael Horn, author and executive director of education for the Innosight Institute, explains the dynamics of so-called disruptive innovations:

> *Policies can't judge the disruption by the old metrics. As long as you do that, the disruption won't look particularly good, and you'll hamstring it in not particularly productive ways. In practice, this means moving much more to outcomes-based funding models for this new disruption. In online learning, time can be a variable. But we can hold outcomes as the constant. The Florida Virtual School is a good example. They only pay for a course when a student has successfully completed the course. We have to free up all of our assumptions about seat time. We've been measuring the wrong end of a student for the last 80 years. Free up all those constraints on Carnegie units and seat time. Let creative solutions come out and just focus on the outcomes that we want.*[56]

4. Data that are Transparent, Available, Comparable and Useful

In education, and indeed throughout the social capital market, social purpose investors and donors have little access to useful, comparable data that they can use to make funding decisions or to understand productivity trade-offs in their management efforts. "[Private] investors can make use of a broad array of data, ranging from reports of quarterly earnings

statements to the historical and current prices at which stocks are traded – all based on standards that are consistent across many industries, markets, and countries," notes Paul Brest, president of the Hewlett Foundation. "Based on this information, investors can put together portfolios that are aligned with their investment horizons and tolerance for risks. And at the end of the day, or quarter, they will know their actual returns."[57] Whereas in the education sector they lack not only achievement data, but also reliable and useful organizational data and financial data.

This is a deeply rooted problem in education, where educators themselves are only now beginning to become comfortable with using student achievement data to inform their instructional decision-making. An increasing number of states are investing in student-level data systems that will enable them to track over time how an individual student is doing, and adjust interventions accordingly, and a range of technology tools are making it easier for schools and school systems to track and monitor achievement and other data. While these improvements have increased the availability of achievement data within districts and states, it remains difficult to draw comparisons across them or to understand what exactly is behind these differences – though the Common Core State Standards mentioned above, coupled with forthcoming new investments in state data systems, will help here. The National Assessment of Educational Progress (NAEP) helped historically, by providing one legitimate set of sampling data that allowed comparable analysis and was powerful in pointing out the different levels of standards set by different states. The No Child Left Behind (NCLB) Act followed, introducing some important highlighting of educational gaps, but did not improve the quality or utility of data, and in fact inadvertently created a micro-compliance environment that was in many ways even less hospitable to innovation.

Recent federal Race to the Top (RTTT) competitions and related state reforms have provided useful incentives for states to connect data to utility (i.e., student-to-teacher analysis), which was reinforced by the criteria within the Race to the Top Assessment program, including interoperability standards for assessment data that could be shared across states and technology platforms. But we still need tools and infrastructure to allow easy sharing and comparing of data. These include not only common calculations for metrics like the graduation rate (an issue the National Governors Association has been pushing, with about half of states now using the NGA's formula) but also widespread adoption of data interoperability standards and easy-to-use open platforms that allow practitioners, researchers, policymakers and investors to access and compare useful data about student learning.

In addition to addressing academic data, investors – whether private sector or public sector leaders investing tax dollars – need better access to organizational benchmarks for elements like program design, staffing and costs. As scholar Marguerite Roza notes, school districts report certain things in consistent ways, such as the number of full-time employees, but do not provide reports for more specific things like overall math instruction, remediation or professional development. "Since education leaders don't know the costs of their current efforts, they can't compare them to potential alternatives," Roza says. "For instance, in one district where I consulted, the leaders couldn't determine what they were spending on foreign language classes, so they couldn't be sure if switching to an online language program such as Rosetta Stone would save them money or not. In another district, officials couldn't parse the potential savings to be incurred by adopting a reading program that promised to reduce the occurrence of reading disabilities."[58]

Entrepreneurial organizations are often no better, using their own systems and terminology to describe programs and to account for their costs. Financial and impact reporting data are often presented in an inconsistent way that is less than useful to funders, especially those interested in helping organizations grow to a significant size or achieve a level of sustainability that decreases their dependence on philanthropy. For example, nonprofits do not account for their growth capital separately from their general operating revenue, and thus "relatively few donors and foundations are willing to provide money for growth because it is difficult to track what their money accomplishes," says George Overholser of NFF Capital Partners.[59] Outside of education specifically, the social sector has been experimenting with ways of advancing on this front, with the Global Impact Investing Network developing what it calls "Impact Reporting & Investment Standards" (IRIS).[60] These standards are a set of cross-sector and sector-specific indicators designed to reduce the reporting burden on entrepreneurs while increasing the level of comparable information available to impact investors.

Finally, one of the most critical elements of making capital markets work is the development of specialized intermediaries, who can help investors and others make sense of this data. Some of these intermediaries trade in knowledge and information, such as bond-rating firms, equity analysts and consulting firms, while others specialize in funneling investment funds, such as venture capital firms and investment banks. Because the private capital market is so large and diverse, these intermediaries develop valuable expertise in particular types of investments, categories of capital providers or spheres of information, allowing them to add value to the space between an investor's capital and an entrepreneur's business.

Because the social purpose capital market in education is young and growing, there are still a limited number of these independent intermediaries and advisers, and fewer still who are focused explicitly on education. Thanks to the influx of philanthropic capital into the market over the last 10 years, several consulting firms have begun to engage with entrepreneurial clients, including the for-profit Parthenon Group, the Monitor Institute and The Bridgespan Group, the nonprofit spin-off of consulting giant Bain & Company. There are a handful of analysts that track industry trends; Eduventures Inc. has been at it for years, more recently joined by JPMorgan Chase, neXtup (whose founders include longtime education analyst Michael Moe, formerly of education-focused investment bank Think Equity), Berkery Noyes and Education Growth Advisors. Newer entrants include a group of technology editors and programmers building EdSurge, a new tracker of information and news about educational technology products and companies that would help investors and entrepreneurs navigate this emerging field. Given the complexity and importance of this industry, this level of attention is not yet sufficient to grow investment activity to the scale we need.

In addition to information intermediaries, network-building hubs help to build the knowledge and relationships that are necessary to encourage and sustain innovation in a field. NewSchools Venture Fund has been hosting its "Summit" for 12 years with precisely this goal in mind. The Education Innovation Network, co-chaired by Michael Moe, has for a few years convened entrepreneurs, educators, researchers and investors at its Education Innovation Summit at Arizona State University's SkySong Center. Since the last such summit in 2010, 10 of the 55 companies that presented had major investments totaling $110 million, five companies merged or were acquired, and 19 announced major partnerships. This represents half of the total investment in education companies of $225 million in that period.[61]

On the public and philanthropic front, a group of foundations collaborated in 2010 to quickly create the Foundation Registry to better connect Investing in Innovation (i3) grant applicants with funders who might provide part of their required "matching funds." Though this online platform significantly helped improve the matching fund process, it remains unclear whether and how it will evolve to meet the future needs of philanthropists, investors and entrepreneurial organizations.

5. Robust, Diverse and Aligned Investment Capital

In order to be effective, any capital market must have two things: an amount of capital commensurate with the needs it is tackling and a diversity of investors. The first half of this is

fairly obvious: a market starved of capital cannot appropriately respond to the needs of buyers, users, or organizations that seek to start up or scale up to address those opportunities. Meanwhile, all mature financial markets have some investors who seek high-risk, high-return opportunities, like venture capital, and others who seek more-stable and lower-risk investments, like mature utilities stocks or bonds. This kind of diversity is important to keep a market dynamic and responsive to emerging needs and opportunities.

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Although the social purpose capital market is rapidly expanding, it is still relatively limited in terms of the number of players, their coordination and the types of investment vehicles available – all of which, put together with barriers that inhibit traditional investors, significantly hampers the growth of entrepreneurial solutions in education. The responsibility for fixing this is shared among the nonprofit, private and public sectors. Specifically, the biggest financial challenges facing these entrepreneurs are: too little early-stage investment capital available to for-profit social entrepreneurs in education; a dearth of nonprofit capital for organizations that want to grow to scale (at both the early and later stages); and a shortage of supply-side investing and incentives in this important arena by the public sector.

Challenge #1: Early-Stage For-Profit Capital

Public education would seem a natural opportunity for private investment: massive and fairly predictable annual spending, huge needs, many customers, a clear link between improvement and the larger economic and social benefit. But its ideological and politically volatile nature has scared away many private investors. Even those undaunted by these factors tend to mitigate the immense risk (and questionable return) involved in education innovation by waiting to invest in entrepreneurial organizations until they have made significant progress developing and selling their product or service. When venture capitalists shy away from making early-stage for-profit investments in education, promising innovations are starved of capital to get off the ground and to grow in response to demand. For example, from 2005 to 2010, just 128 education companies received venture capital dollars, totaling nearly $970 million – compared with more than $13 billion to 500 clean technology companies and $41 billion to 1,900 life sciences companies, both sectors that have social impact dimensions. Investors are not only cowed by the struggle to build strong education businesses, but by the

challenge of achieving financial returns through an initial public offering or an acquisition: over the last 20 years, just 31 venture-backed education companies have gone public (though many more have been acquired, often by big publishers who quickly assimilate and dilute the original innovation) – less than half as many as the number of IPOs from the clean technology sector (65), a sector that didn't even really exist until relatively recently, and just 5 percent as many as the number of life sciences IPOs (665).[62] Put bluntly, it's been hard for investors to make a decent return in K-12 education.

In recent years, investors who have long shied away from the volatile education market have been edging toward making education investments, particularly in technology.

In recent years, investors who have long shied away from the volatile education market have been edging toward making education investments, particularly in technology. They tend to be intrigued by factors outside of education, like the reduced cost of technology development (whose potential to improve productivity in education is largely unrealized) and the shifting economic environment that has put pressure on education "buyers" (especially districts) to cut costs and boost productivity. They are also encouraged by education-specific policy changes that are creating a more evidence-based R&D system, creating a Common Core of State Standards, improving incentives and rewards for performance, and making data more transparent and useful.

Taken together, these shifts create new opportunities for innovation and make room for a much more diverse set of smaller players to enter the market on almost equal footing alongside the traditional publishers. In particular, seed-stage funding by "angel" (individual) investors has been on the rise, including the recent high-profile example of Reed Hastings' investment in Dreambox. "The velocity of the investment in the education industry is rapidly increasing," note marketing materials from the Education Innovation Network, based at Arizona State University. "From April to November 2010, high-profile venture capital firms completed 19 investments with a total value of more than $225 million in education innovation companies. Investments were made by more than 50 VC firms and angel investors, notably $75 million for Chegg (online textbook rentals) by Ace Limited, Kleiner Perkins, and Insight, and $46 million for Kno (tablet textbooks) by Andreesen-Horowitz, Silicon Valley Bank, and Triple Point Capital."[63] But most of these educational technology investments focus on content and content delivery mechanisms that can tap a mixture of consumer and schools markets, and not the infrastructure changes required to drive dramatic productivity improvements within public school systems.

A few new education-focused venture capital firms like Learn Capital (with investment from Pearson, among others) and others interested in impact investing with the possibility of education investments, like City Lights Capital, have joined traditional venture capital firms such as Union Square Ventures, New Markets Venture Partners and higher education investors such as Salmon River Capital to make early-stage institutional investments in education start-ups, alongside social-venture firms like NewSchools Venture Fund and Charter School Growth Fund, who have invested in both for-profits and nonprofits in education. Many are watching as News Corporation and Google have begun to make strategic investments and acquisitions here as well, including News Corporation's acquisition of Wireless Generation for $360 million. This activity is certainly a step in the right direction, but does not yet approach the scale of the need.

A few foundations have begun to step into this gap, providing some socially motivated investments in early-stage education companies from their large endowments instead of only from grant funds. The Kellogg Foundation's "mission-driven investments" have focused not on the earliest and most risky, but rather on those that have a solid revenue base, including equity investments in healthy food service provider Revolution Foods and preK Headstart turnaround operator Acelero Learning, and a bridge loan to Wireless Generation (prior to its acquisition by News Corporation). And the Bill & Melinda Gates Foundation has recently begun to make some equity and royalty-based investments, including support for companies like Inigral Inc. (which creates online communities) and Tutor.com (which provides accessible and affordable tutoring), both aiming to improve college success for low income students. The philanthropic sector is also embracing the potential of competitive "challenges" or "awards" to support early-stage innovation. For instance, the Next Generation Learning Challenges initiative from the Gates and Hewlett foundations will provide multiple "waves" of grants tied to specific requests for proposals that are designed to expand the reach of technologies that can improve college readiness and completion; individual grants will be between $250,000 to $750,000 – far less than what venture capitalists might provide, but a start.[64]

Challenge #2: Philanthropic Capital for Nonprofit Scale

Philanthropic donors are also affected by the lack of evidence-based decision-making in the public education system. Their coping mechanism is to adopt their own frameworks for grantmaking based largely on their own unique ideologies (and often those of their endowing families or individuals) and to hold grantees accountable according to their own specific metrics. Philanthropy as a field also tends to publicly penalize failure but rarely celebrate real,

meaningful successes, leading most donors to avoid risk by spreading funds across many small grants instead of placing larger bets – which, as noted earlier, forces nonprofits to fund-raise pretty much constantly.

"At precisely the moment when large amounts of capital would flow to a proven idea in the for-profit sector, funders in the nonprofit sector frequently back away." –Jeff Bradach, The Bridgespan Group

Even established nonprofit organizations that demonstrate a clear impact find it nearly impossible to raise funds for growth. This is what Bridgespan consultant Jeff Bradach calls the "paradox of success" in the nonprofit sector. "At precisely the moment when large amounts of capital would flow to a proven idea in the for-profit sector, funders in the nonprofit sector frequently back away," he writes. "There are many reasons – donor fatigue, a belief that equity requires spreading money around, hesitance to make 'big bets' – but the consequence is that proven solutions to pressing problems do not spread." Grantmakers for Effective Organizations has found that foundations provide a median of just 20 percent of their grant dollars to general operating support, and that the median grant size is just $20,000.[65] Sean Stannard-Stockton further illustrates the challenge of scaling in one of his posts to the Tactical Philanthropy Advisors blog:

> *The nonprofit sector suffers from a massive inability to scale. Since 1970, only 144 nonprofits have grown to surpass the $50 million a year in revenue mark. During that same time, 46,136 for-profits have cleared the $50 million hurdle. There is nothing fundamental about the nonprofit corporate structure that prevents growth. Yet accounting standards that fail to recognize nonprofit equity strip away the single most important building block to growing an organization. Without equity, an organization is forced to live on the revenue they gather each year and lack the ability to make meaningful investments in growth opportunities.*[66]

Certainly not all nonprofit investors shy away from providing growth capital to these organizations. For the last 13 years NewSchools has been aggregating capital from donors and providing large, long-term grants and loans to a range of nonprofit (and for-profit) organizations that are trying to grow and serve more students. The Charter School Growth Fund began to do likewise in 2005, but that is only two specialized intermediary funding organizations focused exclusively on this incredibly large field. Some newer foundations established by wealthy entrepreneurs from the business sector – whose founders have an appreciation for what it takes to grow an enterprise to scale – have been willing to provide

bigger grants to organizations seeking to provide large-scale change, thus allowing those entrepreneurs to focus more of their energy on running the enterprise. For example, the Doris & Donald Fisher Foundation (benefactor Donald Fisher founded the Gap clothing empire), the Bill & Melinda Gates Foundation (created from the massive earnings of Microsoft founder and former CEO Bill Gates) and the Walton Family Foundation (created by Wal-Mart founder Sam Walton and his heirs) have all given many millions to the nonprofit charter school network Knowledge Is Power Program (KIPP) to sustain that organization's ambitious growth plans, including at least $40 million from the Fisher Foundation, $17 million from the Gates Foundation and more than $25 million from Walton. And other foundations are beginning to support the kinds of systems that growing nonprofits need in order to successfully grow with quality, instead of considering all operational support as "overhead," such as the Michael & Susan Dell Foundation's grants to districts and charter school management organizations for performance management systems and a similar grant by the JPMorgan Chase Foundation to Friendship Public Charter School.

In a bold move, some exceptional foundations, including the Atlantic Philanthropies and the Gates Foundation, have announced that they plan to "spend down" their endowments. Rather than allocating only the minimum legally required amount of 5 percent of their assets each year, they have set a deadline by which all of their funds will be put to use. This strategy stands in sharp contrast to the vast majority of foundations, whose growing endowments allow them to grant more money to nonprofits but also to support enormous staffs and occupy lush office buildings and operate in perpetuity. The decisions by Atlantic and Gates to spend down their endowments will no doubt increase the amount of philanthropic capital available in this century, but because just a small percentage is expected to flow into public education, this will not come close to filling the gap of nonprofit growth capital for social entrepreneurs in this market.

Foundations can take a number of steps to address this shortcoming. The simplest is to recognize the capital needs of social entrepreneurs and provide them with larger, longer-term grants. Further, more foundations could take a page from Atlantic and Gates by either spending down their endowments, or at least increasing the percentage of their assets that is used to create social impact through a variety of "program-related investments" or PRIs. The past decade has seen a slow increase in foundations willing to use PRIs for supporting growing nonprofits. The Gates Foundation established a pilot program allocating $400 million for PRI opportunities, including debt, equity and guaranty investments[67] and recently made its first such direct equity investment (as noted above), providing $2 million of a $4 million round of financing to Inigral, a for-profit developer of social applications for increasing college

enrollment and engagement. [68] In 2010, The Annie E. Casey Foundation approved expanding its social investments to a total of $125 million, or 5 percent of the philanthropy's $2.5 billion endowment. The increase from the endowment would not be included in the annual grant payout rate of almost 8 percent (3 percentage points higher than the federally mandated 5 percent).[69]

Foundations could also learn from the experience of the Kellogg Foundation. In 2008, Kellogg announced plans to invest $100 million of its $9 billion endowment in mission-driven investments in the U.S. and Africa, committing $75 million domestically.[70] MDIs seek near or market returns, but are made in efforts that generate social impact and are done as a way to ensure that at least some portion of the foundation endowment funds activities aligned with the foundation's mission (whereas most of the more than half a trillion in foundation endowment assets[71] is invested solely in traditional profit-maximizing investments).

Foundations have also partnered with other investors to "layer" or "sequence" capital for promising education efforts. One way "layering" is being used is to make charter school facilities development – one of the most expensive aspects of operating a charter school management organization – more affordable and attainable. For example, Aspire Public Schools secured $93 million in a tax-exempt bond issuance with $8 million apiece from the Gates Foundation and the Charles and Helen Schwab Foundation (structured as program-related investments that acted as unfunded loan guarantees), a $1 million funded guarantee by NCB Capital Impact (a nonprofit lender that will also manage the PRI) and $4 million by the Sequoia Union High School District.[72] Meanwhile, on the sequencing front, NewSchools Venture Fund provides patient, impact-first capital to early-stage education entrepreneurs (including both for-profits and nonprofits), allowing them to progress far enough in their development to attract traditional private sector investors in later rounds of financing (for for-profits) or to persuade foundations to support growth of new markets (for nonprofits). For example, healthy food provider Revolution Foods received early investments from NewSchools and other impact-first investors and has recently secured a significant financing round ($20 million) from traditional venture capital investors impressed by its early results and interested in encouraging its scale.

One of the easiest ways for philanthropies to provide more growth capital to nonprofits is to use "recyclable grants" for expanded operating capital. These interest-free, long-term loans could be allocated to nonprofits that generate fees for their services (such as charter school management organizations) and could therefore repay those loans over time, allowing the same grant capital to be "recycled" and provided to other organizations. Another approach

would be to create an "equity equivalent" that would allow foundations to provide nonprofits with growth funds without saddling them with debt liability that reduces their access to private sector debt. Although such a tool might look much like a recyclable grant or loan, it could be structured so that it would be accounted for and function more like equity (only to be repaid if certain financial accomplishments were met). Still another way to use PRIs is to invest in independent intermediary organizations that could then specialize in selecting and supporting higher-risk early-stage organizations – whether for-profit or nonprofit – within areas that complement the work of foundations themselves. These intermediary firms could then leverage these funds with later-stage funds from the private sector or from foundations.

Meanwhile, several newer firms have emerged to help social entrepreneurs in their quest for growth funds, including the previously cited NFF Partners, founded by George Overholser within the Nonprofit Finance Fund, and SeaChange Capital Partners, which was created by two former Goldman Sachs partners with a $5 million initial contribution by Goldman Sachs itself. These organizations perform extensive due diligence to choose nonprofits that are poised for growth, present the opportunity to their network of donors and raise capital from those donors as NFF describes it, "without major restrictions and with an expectation of return measured by social impact." This approach has helped NFF Partners raise more than $40 million for two education nonprofits, College Summit and Teach For America. Also in this realm, the Growth Philanthropy Network is working with funders and nonprofit organizations to try to create a national marketplace to provide the growth capital and other resources needed to take nonprofits and programs to scale, including venture fairs and more informal connections.[73] But more of this kind of activity is needed, given the extent of the problems we face.

Challenge #3: Public Sector Investments

As discussed earlier, public sector financial support to encourage social purpose innovation can take the form of regulatory-based incentives or contracts or subsidies, actual market making and/or direct investment activity. Historically in U.S. education, most of the public sector activity has been in the form of regulatory systems to provide revenue-side incentives for private sector entrepreneurial activity, as opposed to any direct investment in spurring on the *supply* of innovation per se. Regulatory demand-side support includes things like the revenue streams created by the supplemental service providers provisions of NCLB. The few historical examples of supply-side support include the federal charter schools program start-up and debt enhancement funds, and access to state bond revenue for financing charter school facilities.

However, the Obama administration has begun experimenting with more-direct efforts to invest in and support innovative providers. As a result of federal stimulus dollars, including the Race to the Top competition (RTTT and RTTT-A), the Investing in Innovation (i3) funds and the Teacher Incentive Fund (TIF), the U.S. Department of Education has recently engaged in direct funding of infrastructure reform incentives and innovative ventures to the tune of more than $1 billion ($330 million for RTTT-A, $650 million for i3 and $442 million for TIF). Along with building a stronger evidence base, these investments mark significant progress toward growing and steering the markets for innovation in education. Coupled with the recent development and adoption of the Common Core State Standards, this two-year period has been perhaps the most extraordinary public investment in education innovation in our lifetime. If this momentum is sustained, it could provide the opportunity to reframe entirely the landscape for innovation and continuous improvement in education. However, given the powerful interests that are lined up against these structural reforms and cultural shifts, this momentum should not be taken for granted.

Furthermore, these efforts, while potentially game-changing, suffered from two serious problems that direct governmental investment in innovation faces. First, departmental investments generally require peer review processes, and the "peers" doing the selecting are generally inexperienced with identifying promising innovations. Second, public grant processes – even those with substantial degrees of freedom and competitive systems like i3 – are still affected by their surrounding political environment. For instance, the recent i3 competition did not allow for-profit companies to compete, which significantly reduced the pool of prospective organizations and talent. As discussed earlier, effective innovation requires a close connection to real problems of practice and a rapid, nimble learning cycle – none of which lends itself to annual peer-reviewed RFP cycles. In order to build on this early momentum, the public sector should supplement incentive-based funding like RTTT and direct investments in nonprofit activity like i3 with other activities that encourage private sector investments and entrepreneurial activity.

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CREATING A BETTER ECOSYSTEM FOR INNOVATION IN EDUCATION

What would it take to create a dynamic, responsive education system that encourages innovation and strives for continuous optimization of outcomes – with incentives and rewards aligned to those desired outcomes? Some signals may be found in the fact that this goal is similar to the classic definition of a market, and should be treated more as such. Of course, this is not a naïve call for a simplistic free-market system, but rather an acknowledgement that certain kinds and degrees of market forces are vital for accomplishing the ambitious goal of improved academic outcomes for students – and recognition that *all* sectors, including the public and philanthropic sectors, have a vital role to play in organizing that market.

In simple terms, a market is an economic ecosystem in which demand (those that "buy" or use) and supply (those that provide) meet and exchange something of value. Within any market, suppliers and consumers each attempt to maximize their own gain for the lowest cost. There is an implicit assumption that buyers and sellers are able to make choices – suppliers have some choice about what segment to focus their supply on, and buyers can choose freely from among a range of suppliers (or choose to exit the market). Together, these dynamics put pressure on suppliers to respond to the demand side's needs and preferences so they can compete effectively with other suppliers. Some useful benefits result from allowing these forces to play out, but they must be balanced against other societal values. As economist Arthur

Okun has explained, a market "responds reliably to the signals transmitted by consumers and producers. It permits decentralized management and encourages experimentation and innovation. Most important, the prizes in the marketplace provide the incentives for work effort and productive contribution." The flip side, Okun says, is that markets are not in and of themselves set up to ensure equality of opportunity or of income. Therefore, Okun says, capitalism and democracy "need each other – to put some rationality into equality and some humanity into efficiency."[74]

"[Capitalism and democracy] need each other – to put some rationality into equality and some humanity into efficiency." –Arthur Okun, economist

Scholars Mark Schneider and Paul Teske have pointed out that "schooling is characterized by only an indirect link between the payment for and the receipt of the service, which blunts some of the power consumers have over private goods, such as the ability to withhold payment."[75] Another dynamic that distorts the system is the lack of a user- or learner-centric approach in policies and buying decisions. For example, state textbook adoption processes and purchasing cycles often adhere to timelines and criteria that reflect the state's ability to consider or purchase materials, rather than the pace of change in the content or the needs of teachers – let alone student utility. Finally, markets work best when buyers have the option to make other choices – otherwise, while there will still be suppliers and users, there will be little dynamic or responsive interaction. It's not just the abstract system that benefits, though – individual participants reap the rewards. Organizations simply work better when the people who gather within them agree on a common purpose and approach. Choice also increases the agency of the stakeholders who make these choices. Research has shown that the very act of choosing leads people to demonstrate an "escalation of commitment" to what they have chosen.

Whether we like it or not, these market forces – and the capital that goes along with them – do run through education. Money flows up from taxpayers to state and local governments, and is used to pay for a variety of resources in education, ranging from teacher salaries and instructional supplies to buildings, food and transportation. Thus far, efforts to harness "market forces" on both the demand and supply sides in education have been somewhat simplistic and rarely took into account the complicated intersection of these forces in the lives of children and their communities. On the demand side, charter school policies in most states were initially too permissive, incorrectly assuming that quality public outcomes – and school operators – would arise purely from consumer demand. "Early hopes that charter and voucher schools would be so obviously great that no finely calibrated outcome measures would be needed to prove it have been dashed," says Paul Hill, director of the Center on Reinventing

Public Education at the University of Washington. "So have hopes that families and communities would be willing to wait until children had completed school to make judgments about school performance."[76] More sophisticated approaches like the portfolio management model taking hold in large urban school districts such as New York or New Orleans require the city agency to engage in purposeful market-making by contracting with multiple school providers to create and manage a diverse portfolio of educational offerings that better meet community needs, tap different pools of talent and allow more parental choice. When this kind of activity works, scholar Jeffrey Henig finds, "public managers are not simply listening carefully to markets or applying a set of technical administrative criteria: they 'do more than steer a market process, they balance technical and political concerns to secure public value.'" But he also points out that this kind of judgment implies a need for a different kind of public sector leader who is able to "judiciously and effectively intervene, and do so not only whenever required, but also only when required, to maximize the public good."[77]

Harnessing market forces for social good is complex and requires very thoughtful, equally complex and constantly evolving regulatory systems. But we can also see that *not* harnessing these forces has left us with a system that is stable and comfortable for our current educators to manage, but incapable of reaching the dramatic productivity improvements we need.

On the supply side, the recent debates over the role of for-profit higher education providers have shown us how important it is to carefully and explicitly define success in terms of real outcomes metrics and not merely process indicators like seat time or course registration, and to effectively design incentives and enforcement infrastructure for providers. We can see from experience both in education and other fields that harnessing market forces for social good is complex and requires very thoughtful, equally complex and constantly evolving regulatory systems. But we can also see that *not* harnessing these forces has left us with a system that is stable and comfortable for our current educators to manage, but incapable of reaching the dramatic productivity improvements we need.

How can we create better and more powerful market dynamics in education that align public, private and philanthropic investments and resources with public goals? And what is the right role of the public sector in this kind of market-shaping effort? Below, we offer some initial recommendations to begin addressing this enormous and complex question.

CONCLUSION

The ambitious goal of college-level attainment for all of our students creates a massive productivity challenge for public schools and school systems. We know from historical observation that these kinds of productivity gains will require tremendous innovation if they are to be accomplished without huge increases in funding – not a likely scenario given the current economy. And we have posited in this paper that the kind of focused and sustained innovation we need requires a major cultural and infrastructure shift in our educational ecosystem. This kind of fundamental shift is significant: it requires moving from a culture and system of compliance to one that is adaptive and responsive to emerging needs, and based in cycles of constant learning, with incentives and rewards aligned to our greatest needs, effective metrics and oversight to ensure high quality and diverse suppliers of goods and services whose incentives are aligned closely with our public goals and priorities. It will require sophisticated skills and significant resources from across the public, private and nonprofit sectors in order to design and deliver this kind of new educational ecosystem.

How might the sectors contribute to solving this challenge, based on their strengths and weaknesses?

Public Sector. The public sector has a responsibility to define and ensure the public good. Its job is to set the "rules of the road" and define and focus the ecosystem on priorities through

policy and regulations, and to police or ensure the delivery of public goods. The sector should do so in a way that creates the strongest outcomes, by balancing its oversight and control needs with providing flexibility for high performers and innovators who can help move the system forward. The strength of the public sector is its clear mandate to prioritize the public good, while its weakness is risk aversion, which comes partly from the political process itself and partly from ideological pressures. "Government should do *more what, less how*: a stronger hand in setting great national goals and purposes; a lighter touch in how we reach those goals," authors Liu and Hanauer have challenged. "Government should be… less wielder of stick than of carrot; less the parent than the coach; less the vending machine than the toolkit for civic action. A more what/less how government should set the bar high and invest fully in a great springboard – then let people, through dedication and practice, compete to get over the bar."[78] "Governments and other non-market institutions have long suffered from the innovation malaise of top-heavy bureaucracies," agrees author Steven Johnson. "Today, these institutions have an opportunity to fundamentally alter the way they cultivate and promote good ideas. The more government thinks of itself as an open platform instead of a centralized bureaucracy, the better it will be for all of us, citizens and activists and entrepreneurs alike."[79]

"Government should do *more what, less how*: a stronger hand in setting great national goals and purposes; a lighter touch in how we reach those goals." –Nick Hanauer and Eric Liu, authors

Philanthropic and Nonprofit Sector. The philanthropic and nonprofit sector was created to allow individuals to pursue public good outside of the rigid constraints of the governmental infrastructure. As an "independent sector," foundations and the nonprofit organizations they support have the ability to be quite nimble, adaptive and future-oriented, in a way that the public sector cannot easily do. There are few real constraints on philanthropy, and little of the short-term-only pressure that is put on the public and private sectors, due to the fact that the sector faces few constraints other than avoiding fraud and lobbying. The philanthropic and nonprofit sector also have an ability to focus on and subsidize those products or populations that the private sector has incentives to avoid, such as "orphan drugs" or hard-to-serve student populations. Their weaknesses (with a few notable exceptions) include an unfortunate aversion to risk, a slow pace of activity given that only 5 percent of their capital is required to be mission-focused in a given year and an idiosyncratic, often ego-driven culture that can be resistant to aligning with others' goals or priorities. The goal of those in philanthropy in this period should be, as philanthropic leader Paul Ylvisaker described their potential: to be "society's passing gear[80]" – that is to use their unfettered position to get out ahead of the curve

to invest in building innovative supply that will be needed down the road but doesn't yet have broad public appeal or awareness, and to accelerate key cultural and infrastructure changes that are already in process but moving too slowly. Given their ability to focus on the future and long-term benefit, they also should play an important role encouraging or demanding that public sector leaders pay attention to and invest in long-term benefits, instead of only short-term electoral political pressures.

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Private Sector. The private sector is generally acknowledged to excel at competition – and the rapid innovation and development cycles that often stem from that competitive drive – as well as at efficiency, access to specialized talent, and quicker growth than other sectors. The weaknesses of those in the private sector include: defining success through simplistic financial metrics, impatience for financial returns, an increasing push for growth above profitability (with "value investors" the exception), and (left to their own devices) a strong tendency to pursue efficiency over effectiveness. Their focus in this time of transition should be to expand the pool of capital focused on early-stage educational innovation, and to broaden the diversity and scale of capital by creating new layering and sequencing approaches that combine traditional, impact and philanthropic capital to better meet the needs of the field for risk and growth capital.

Recommendations

We shared this paper with a set of participants at the cross-sector Education Innovation Forum & Expo, presented by the Aspen Institute in cooperation with the U.S. Department of Education, in January 2011. These conversations helped to refine our own analysis and informed the recommendations that follow.

1. Continue the culture shift toward performance and away from compliance. It is important for policymakers to continue to push away from a rigid compliance culture and toward a more performance-based culture and system – at every level, including federal, state, district and school/classroom. These shifts are not easy and no one knows exactly how to do them correctly, but it is crucial we don't lose sight of the end goal in the face of legitimate implementation challenges. Specific areas to focus on include:

a. Leadership. There is an enormous need for more and differently prepared leaders – including policymakers and educators – who are capable of functioning in this new environment. Some attention is being paid to rethinking teacher evaluation and preparation, but far too little attention is being devoted to cultivating a pipeline of managers and leaders, let alone adjusting the way they are prepared, licensed and evaluated.

b. Assessments. It is critical that we accelerate the development of better assessments that really measure what we care about and that provide rigorous data (including for the many "untested subjects") that can be used in performance-evaluation systems.

c. Data. It is important to support the development of technology platforms that act as the "backbone" or "middleware" for allowing practitioners, researchers and policymakers to access disparate types of data (achievement, financial, operational, programmatic) in order to conduct productivity analyses and identify the most effective ways to invest their resources.

2. Enable faster and continuous learning cycles. As part of this shift, new mechanisms are needed to support and encourage faster and continuous learning cycles to better inform practice at every level, like that exemplified in the "90-day" cycle explained earlier. Another promising idea would be the identification of a diverse set of what we call "subsidized beta networks," where a group of like-minded practitioners provide extra access to researchers and developers in exchange for early access to new tools and funding subsidies that would make adoption low-cost. These networks of subsidized early-adopter customers would provide small learning spaces to help inform practice, accelerate development and attract investors. We believe these networks might function best if each shared a set of common pedagogical, philosophical, and technological elements, but there would then need to be a diverse set of such networks to learn about applications in different kinds of environments.

3. Invest in identifying and cultivating "smarter demand." As we have laid out in a previous paper, in most markets, suppliers listen to the needs of their customers to figure out how to create appropriate products and services. In education, practitioners are often overwhelmed with information and grappling with changing demands on them and their craft, and they rarely know what is possible in other fields that might be useful to them, let alone how they might assess the quality of what's available in their field.

a. Early adopters. Like the "specialized beta networks" idea above, it would be helpful to identify people and organizations willing to act as "early adopters" in education – to try out and help refine new products and services before they are widely available, and to inform innovators, investors and policymakers about their needs in ways that will help steer resources toward solutions that improve their practice and optimize student outcomes.

b. Aggregate demand. We need ways to aggregate the demand of thoughtful, cutting-edge buyers, so they can help drive the market forward. Some, including Thomas Kalil of the White House Office of Science and Technology Policy, have suggested that adopting something like the Advance Market Commitment tool used in global health might allow small groups of practitioners and funders to aggregate their buying power in favor of developing innovative new solutions.

c. Information to inform smarter demand. Education practitioners need *Consumer Reports*-like information to help them make sense of the available tools and services, and to allow them to compare quality and price. The What Works Clearinghouse was an effort in this direction, but perhaps more valuable still would be an independent arbiter that can combine information and services to coordinate the purchasing and sales process inside states and districts, in order to make the buying process more effective for both practitioners and high-quality providers.

4. Strengthen the R&D continuum. It is crucial that we invest more resources in a robust R&D system, and do so in a way that capitalizes on the experiments and lessons of other fields.

a. Anchor in problems of practice. Create more-effective ways to identify emerging problems of practice in the field, and ensure those problems influence the way R&D resources are allocated.

b. Build the evidence base. Consider investing in a "knowledge scan" each decade, as the National Aeronautics and Space Administration and National Science Foundation have done, to measure progress and define collective priorities for further knowledge development.

c. Connect research to development. Develop an R&D entity that functions much more like DARPA in its independence from bureaucracy but tight connection to problems of practice and fast learning cycles. ARPA-ED may be this entity.

d. Improve development. Multiple pathways are needed to develop solutions at the early stage and at scale, some based in innovations from the field and others intentionally harvesting insights from basic research. It will be important to tap private sector expertise and solutions wherever possible, rather than excluding this important source of innovation.

5. Align capital with the desired impact. We need to create mechanisms to better align capital – private investment and philanthropy – with our goals for student achievement and attainment.

    a. Maximize available capital. We should continue to support the "sequencing" and "layering" of private capital so that investors with different risk/return profiles can combine their efforts in ways that lead to much greater investment activity aimed at significant social impact. Technology could help coordinate these diverse investor syndicates (and reduce the burden on entrepreneurs) if used to share information (e.g. case studies, sample term sheets, diligence documents, common reporting frameworks).

    b. Create common metrics. To increase and improve private and philanthropic investment activity and ensure that it is aligned in support of improved educational outcomes, we must create clear and consistent metrics that incorporate the various types of impact, including quality and quantitative metrics, as well as metrics that integrate outcomes with return on investment, productivity or value assessments (i.e., outcomes per dollar spent).

    c. Invest in data infrastructure. Improved metrics will be overwhelming at best – and meaningless at worst – if not accompanied by improved infrastructure and easy to access and use tools that allow investors, innovators and educators to better understand the data that are collected and to use that data to inform decision-making.

    d. Support intermediaries. Specialized intermediaries can take some of the burden off foundations and investors, and provide targeted support – whether guidance, information, funding or some combination of the three – to education innovators, policymakers and even to investors themselves.

    e. Align incentives with outcomes. We should invest in experiments that better align investment incentives with desired outcomes, such as foundation-backed performance guarantees, public sector investment incentives to attract capital to

key areas of need (such as rural success, English Language Learners or Special Education) and performance-based contracts. Another idea would be to develop a "patient capital" tax credit for education investments – similar to New Markets Tax Credits – to attract more long-term capital to education investments.

Taken together, we believe these actions would begin to steer the educational capital markets in a more productive direction: toward the rapid and widespread educational innovation and improvement that our economy so desperately needs and that our children so clearly deserve.

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